
From: NOE Susan(SM) - BRUCE POWER <Susan.NOE@brucepower.com>
Sent: June 28, 2019 11:28 AM
To: Torrie, Brian (CNSC/CCSN); Sigouin2, Luc (CNSC/CCSN); Poirier2, Julie (CNSC/CCSN); Gallant, Alexis (CNSC/CCSN); Consultation (CNSC/CCSN)
Subject: CNSC Correspondence: NK21-15195 / NK29-15981 / NK37-03228 - Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste
Attachments: NK21-15195_NK29-15981_NK37-03228.pdf

Good morning,

The attached correspondence has been issued by Bruce Power and is being provided electronically for your convenience. The official hard copy of the correspondence will be provided separately.

Thank you,
Susan

Susan Noe | Business Support Representative | Licensing | B10-02E | Bruce Power | T: 519.361.2673 ext.11625

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June 28, 2019

NK21-CORR-00531-15195
NK29-CORR-00531-15981
NK37-CORR-00531-03228

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

Dear Mr. Torrie:

Bruce Power comments on draft REGDOC-2.11.1,
Waste Management, Volume I: Management of Radioactive Waste

The purpose of this letter is to provide Bruce Power's comments on draft *REGDOC-2.11.1, Waste Management, Volume 1: Management of Radioactive Waste*.

Following a collaborative review of the draft document with our industry peers, we have compiled a series of detailed observations and requests for clarification in Attachment A for the CNSC's consideration. In general, licensees found the language in some sections of the draft to be either unclear or imprecise. In some areas, references were made to regulatory documents that have not yet been published and key terms were either not defined or their definitions not included or aligned with those in *REGDOC-3.6, Glossary of CNSC Terminology*.

More specifically, Bruce Power encourages the CNSC to clearly differentiate between a "waste generator" and a "waste owner" by amending the opening paragraph in Section 2 to read, "Under Canada's Radioactive Waste Policy Framework, waste owners are required to ensure the safe and secure management of radioactive waste and to make arrangements for its long-term management. *This includes waste generated by another licensee and transferred under a commercial agreement to a waste owner to process, store and dispose.*"

This would clarify that radioactive waste management may be the responsibility of more than one licensee and that robust agreements are in place to ensure it is managed safely and securely. We believe clear, accessible language equates to improved compliance and public understanding of the scientific rigor that forms industry's waste management programs.

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Mr. B. Torrie

June 28, 2019



If you require further information or have any questions regarding this submission, please contact Steve Cannon, Senior Strategist, Regulatory Affairs, at (519)-361-6559, or steve.cannon@brucepower.com.

Yours truly,

Maury Burton
Senior Director, Regulatory Affairs
Bruce Power

cc: CNSC Bruce Site Office (Letter only)

Attach.

Attachment A

**Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I:
Management of Radioactive Waste**

Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste

| # | Section | Industry Issue | Suggested Change (if applicable) | Major Comment/Clarification | Impact on Industry, if major comment |
|----|---------|---|---|-----------------------------|--|
| 1. | General | Licensees found the language in some sections of the draft REGDOC to be either unclear or imprecise, which made it challenging at times to offer a thorough, contextual review. In some sections, reviewers found references to regulatory documents that have not yet been published and alignment to related documents such as IAEA standards to be unclear. In addition, several key terms were either not defined or their definitions not included or aligned with those in <i>REGDOC-3.6, Glossary of CNSC Terminology</i> . | Given the public interest in the subject, industry encourages the CNSC to ensure the language used to describe requirements and guidance in future drafts is clear to all interested readers. As those responsible for the safe management of radioactive waste, licensees appreciate the scientific basis that supports the CNSC's requirements in this REGDOC. However, industry also appreciates the need for this technical information to be presented in a way that is accessible to people of all levels of technical expertise. | MAJOR | A lack of clarity can inadvertently lead to misunderstanding of requirements and the reasons for them. Clear, accessible language equates to improved compliance and public understanding of the scientific rigor that forms industry's waste management programs. |
| 2. | General | The draft REGDOC does not clearly distinguish between facility types or the requirements that apply to them at various times in their lifecycle. For context, a disposal facility generally has the following lifecycle phases: siting; construction; operation; pre-closure monitoring; closure; decommissioning of ancillary facilities; post-closure. However, for some deep geologic repositories (DGR), SSCs will be "closed" during the operational phase (e.g., used fuel containers and placement panels) and not accessible prior to closure of the DGR and during the post-closure phase. Applicability of requirements for these timeframes need to clear and should not inadvertently create other safety issues. | The REGDOC should be more specific about the timeframe when requirements apply. For example, there are many references to "prior to closure" that should be clarified and there are requirements that should not apply to the post-closure phase. Please see specific examples in the table below for items that could be amended for clarity | MAJOR | Unclear expectations could challenge compliance verification. This could also inadvertently result in: additional requirements being applied to low-risk facilities with no commensurate impact on safety; confusion for members of the public as to expected requirements for facilities. |

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| 3. | 1.1 | <p>As per comment #1, the purpose of the document is unclear as currently written and could generate confusion regarding which requirements or guidance applies to various facility types, such as storage and disposal facilities.</p> <p>Licensees believe the purpose should clearly tell readers which type (low, intermediate, or high-level) radioactive waste to which the guidance applies. It should also recognize there are varying opinions and conventions on what constitutes storage versus disposal. (<i>REGDOC-3.6, Glossary of CNSC Terminology</i> does not provide full definitions.</p> | <p>Amend to read, "The purpose of this document is to provide requirements and guidance:</p> <ul style="list-style-type: none"> • on radioactive waste management applicable to different types of CNSC licensees • related to CSA Group standards applicable to radioactive waste management • supplemental to specific topics in radioactive waste management standards. <p>Requirements and guidance will vary depending on the level of radioactive waste being managed and the facility type, such as storage and disposal facilities, using a graded approach commensurate with their relative risks."</p> <p>For additional clarity, definitions of storage and disposal facilities should be added to <i>REGDOC-3.6, Glossary of CNSC Terminology</i> and referenced in this REGDOC.</p> | MAJOR | <p>An unclear purpose could lead to incorrect assumptions regarding requirements for facility type – storage vs disposal. For context, the time period for storage facilities is measured in decades as opposed to centuries for disposal facilities.</p> |
| 4. | 1.2 | <p>As per comment #1, the Scope is not entirely clear to all readers. For instance, it does not align with Section 24 of the NSCA, which says activities are licensed, not facilities. Nor does it define the term "waste management" or highlight what the "end goal" is with respect to waste management facilities. This could lead licensees to define different "end goals" and, in turn, drive the solutions to address waste management.</p> | <p>Amend the 1st sentence to read, "The requirements and guidance in this document pertain to CNSC-licensed activities facilities..."</p> <p>Define the terms "waste management" and "end goal" to ensure requirements are clear for licensees and CNSC inspectors.</p> | Clarification | |
| 5. | 1.3 | <p>As per comment #1, the list of relevant legislation is incomplete.</p> | <p>Add references to the <i>Nuclear Substances and Radiation Devices Regulations</i> and the <i>Nuclear Fuel Waste Act</i>.</p> | Clarification | |

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| 6. | 2 | As per comment #2, the REGDOC should differentiate between a 'waste generator' and a 'waste owner.' | MAJOR | The management of radioactive waste may be the responsibility of more than one licensee. Reinforcing this in the REGDOC would help clarify the roles and responsibilities for waste generators and waste owners. |
| 7. | 2.1 | As per comment #1, the CSA standard for decommissioning is missing from the list of complementary documents. | Clarification | |
| 8. | 3 | As per comment #1, the definition of radioactive waste does not align with that in REGDOC 3.6, which says "the owner declares to be waste" vs "no further use if foreseen." This introduces a question as to who must foresee "no further use" of the waste. As per Comment #2, it is not clear that the steps listed for the management of radioactive waste may be the responsibility of more than one licensee and may involve transfers/hand offs between licensees. Also, the fact that not all radioactive substances will become radioactive waste is not identified in the background. Some substances may simply decay away to the point the waste is no longer radioactive waste. | MAJOR | Unclear expectations could challenge compliance verification. Generation, control and handling are typically in-facility activities. Processing may be in-facility or it may be contracted to an external party. Storage, transport and disposal may be managed by the licensee who generated the waste, but may also be managed by a contracted party. As currently written, the background section potentially limits the ability for waste to decay to safe levels and be treated as non-radioactive waste. |
| 9. | 4 | The section on General Requirements is unclear in many areas. Bullet #1 requires all licensees to find long-term management solutions that "avoid imposing an undue burden on future generations." While licensees understand the intent of this phrase, it | MAJOR | Generally, a lack of clarity may inadvertently lead public expectations for low-level waste to be the same as that for high-level waste. Specifically, for the 1 st bullet, licensees do not have the authority to define |

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| | <p>is a policy statement inappropriately embedded in a REGDOC. This requirement is not part of the federal policy on radioactive waste management.</p> <p><i>Bullet #3</i> needs to be related to specific waste types so licensee and the CNSC can demonstrate to the public that waste is being safely managed in a manner commensurate with the potential hazard of the waste.</p> <p>Bullet #4 is unclear as to what aspects are interdependencies to be taken in account for. Nor is it clear if “evaluation” refers to CNSC inspections or internal self-assessments by licensees.</p> <p>Bullet #5 should not place the emphasis on the documentation. The licensee does not “implement the documentation” – they implement and document the program, procedures, etc. This statement should also point to guidance on what is considered acceptable as per the graded approach.</p> <p>Bullet #6: When is contaminated material held in storage no longer “useful” and is designated as waste?</p> <p>Bullet #7: The use of OPEX, lessons learned and advances in science and technology should be commensurate with the risk associated with waste. If the risk is very low, it should not be a requirement to use “advances in science and</p> | <p>Bullet #3: Clarify the specific waste types this bullet relates to.</p> <p>Bullet #4: Clarify what aspects of interdependencies need to be documented and who is expected to “evaluate” and by what means. Amend to say licensees should consider all known steps, but the integration waste management systems should detail how interdependencies will be addressed.</p> <p>Bullet #5: Amend to read, “develop, document and implement programs, procedures and instructions to ensure the safety of all waste management activities for which they are responsible commensurate with the scale of the licensed facility activity and the inventory.”</p> <p>Bullet #6: Clearly state when contaminated material is designated as waste. Apply the definition of “waste.”</p> <p>Bullet #7: Amend to align with the 5th bullet and read: “use operational experience, lessons learned from other similar facilities or activities, and advances in science and technology in an effort to continuously improve the safety of the waste management facility or activity commensurate with the scale of the licensed activity and the inventory.”</p> <p>Bullet #8: Amend to clearly state the requirement to provide information is upon request/audit.</p> | <p>“undue burden” on future generations. That responsibility rests with government.</p> <p>Regarding the 5th bullet, industry has had challenges in the past with applying graded approaches, which causes uncertainty in the licensing process when the regulator does not accommodate this approach for low-risk activities.</p> <p>Regarding the 7th bullet, the time and resources required to identify truly relevant OPEX, lessons learned and advances in science and technology for licensees who generate low-level radioactive waste, and are not Waste Management Facilities, is not always commensurate with the impact on nuclear safety. A graded approach would improve this requirement.</p> |
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| | | technology” for continuous improvement. Bullet#8: Reporting requirements are not well defined/ specified. Mandatory and periodic versus discretionary and only upon request? | | | |
| 10. | 4 & 5 | For clarity, the General Requirements in Section 4 and requirements in Section 5 on the Waste Management Program should include the option/ability of a licensed waste generator to contractually (commercially) engage the services of other licensed parties to transport, process, store and dispose of radioactive waste. The contractual arrangement might, in some instances, involve the transfer of care & custody, or of title, to certain waste; i.e. a change waste ownership & going forward responsibility. | Amend the 1 st sentence in Section 4 to read, “All licensees who manage radioactive waste they generate or assume ownership for shall:” Amend the 1 st paragraph of Section 5 to read, “The licensee shall develop and implement a waste management program to control the management of radioactive waste where it is generated, handled, processed, stored, transported or disposed of. Licensees may contractually engage another licensed party to carry out some or all of these activities.” | MAJOR | The management of radioactive waste may be the responsibility of more than one licensee. Reinforcing this in the REGDOC helps clarify the roles and responsibilities for waste generators and waste owners. |
| 11. | 5 | Facilities that require a waste management program comply with CSA N286-12 as part of their licence. As such, this REGDOC should only capture management system requirements that are incremental to the requirements in N286-12 to minimize duplication and inconsistencies with general management system requirements. It should also be clear that N286 does not provide information on how to manage programs, but how to establish an integrated management system. | Remove the first 3-bullets as they are already addressed in licensee’s LCHs for Management Systems. Amend the final sentence in the section to read, “For more information on managing programs management systems, consult REGDOC-2.1.1, Management System [6], and CSA N286, Management system requirements for nuclear facilities [7].” | Clarification | |
| 12. | 5 | As per comment #1, clarity is sought for several of the bullet points in this section. Bullet #5: clarify what is meant by “address all waste streams.” Not all waste streams need to be addressed, but they should be identified so | Bullet #5: Amend to read, “manage address all waste streams associated with or potentially contaminated by nuclear substances” Bullet#6: The requirements regarding the waste | Clarification | |

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| | | <p>an informed decision can be made to implement actions when required.</p> <p>Bullet #6 requires the licensee to consider the waste 'hierarchy' but this is the first time it is mentioned and the term is not defined. Later, Section 7.1 lists four items in the 'hierarchy' (prevent generation, reduce volume and radioactivity content, reuse and recycle, dispose).</p> | <p>management hierarchy need to be clarified either in the text or in the glossary.</p> <p>If the hierarchy in 7.1 is to be addressed in section 5, it should be clearly stated.</p> | | |
| 13. | 6.1 | <p>As per comment #1, the section on waste classification is not clear or consistent. For example:</p> <ul style="list-style-type: none"> Historically, not all waste management facilities have required safety assessments. Is this phrase being used generically? The 4th bullet is a potentially misleading or biasing statement. There are current plans to place LLW in aboveground mounds. Does the 5th bullet consider acid rock drainage and the need for subaqueous disposal? Subaqueous disposal has been employed at Elliott Lake. Also, has there been no backfilling of underground uranium mines in Canada? The current wording does not provide sufficient guidance as to the range of factors that should be considered when determining containment and isolation requirements, which may lead to inappropriate requirements. The section does not make it clear who classifies the waste. Canada already has four | <p>Amend the 2nd sentence of the 1st paragraph to read, "Where appropriate, the classification system shall be based on the specific safety case and safety assessment required for the waste management facility or activity.</p> <p>Amend 4th bullet to read, "Due to its long-lived radionuclides, LLW generally may require a higher level of containment and isolation than can be provided in near surface repositories. "</p> <p>Amend the 5th bullet to read, "the general Long-term management in near-surface facilities adjacent to mines and mills is the only one of the more practical options for these wastes, given the large volumes of waste generated in mining and milling operations.</p> <p>Industry suggests this section should list factors like waste form (solid, liquid, gas etc.) that should be considered when determining the degree of containment and isolation.</p> <p>It should also clarify who classifies waste and add to the definition of LLW eg >2mSv/hr near contact.</p> | MAJOR | <p>A lack of clarity can inadvertently lead to misunderstanding of requirements and the reasons for them by licensees, the regulator and the public.</p> <p>For this section, it may result in licensee's developing unique classifications and unintended confusion when discussing waste. If potential management and disposal approaches are to be cited, this document should do so for all types of waste. Currently, it only provides this information for some of the waste types.</p> |

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| | | <p>main waste classifications, but the REGDOC indicates licensees should classify the waste.</p> <ul style="list-style-type: none"> • In some cases potential “disposal” solutions are presented. In others, they are not. • There is no reference for source of radioactive waste classes and a lack of clarity on the definition of ILW. | | | |
| 14. | 6.2 | <p>As per comment #1, there is an opportunity to clarify the language and intent of the 1st paragraph.</p> | <p>Amend the 1st paragraph to read, “The licensee shall perform waste characterization at the various appropriate step(s) for the management of radioactive waste the specific radioactive waste. Waste characterization shall include assessing the physical, mechanical, chemical, biological, thermal and/or radiological properties of the waste material, as applicable. The licensee must justify to the CNSC the aspects that do not apply. The licensee must justify to the CNSC maintain detailed records of the characterization performed.”</p> | MAJOR | <p>As written, the first requirement has no clear purpose. Clarity is needed as to why the characterization is performed and at what stage(s) the characterization should be performed. As written, this may result in characterization being undertaken when not required and/or characterization not being performed when required. In the 3rd sentence, by default, aspects that do not apply will be ruled out during the various steps of the characterizations and recorded in detail. As written, licensees are being asked to prove a negative, which is not clear direction. This passage also raises a series of unintended questions: At what stage(s) of the full life cycle waste management process is documented waste characterization applicable? If it is primarily for long term storage and disposal, the requirement is imposed upon a generator by the service provider of waste storage and disposal services. What exactly are the requirements for</p> |

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| | | | | | satisfactory characterization of waste? Are the requirements universal and standardized across the industry, or are they variable by generator / service provider. |
| 15. | 6.3 | This entire section on WAC is only applicable to Waste Storage Facilities, or Waste Disposal Facilities. As per Section 1.2 (Scope), the entirety of Section 6 is applicable to all licensees that have a waste management program. | Move Section 6.3 to new subsections in Sections 9 and 10. | Clarification | |
| 16. | 6.3 | The 1 st paragraph is incomplete as written with regard to waste ownership and generation. Also, there is no need to include “unpacked waste.” This is covered by “waste.” Unpacked waste will be accepted for handling, processing, storage, transport and/or disposal at the facility or place of the activity. Clarity is also sought with respect to expectations for the term “place of activity.” | Amend to read, “For waste it generates or for which it assumes ownership, the licensee shall develop waste acceptance criteria, consistent with and derived from the safety case and safety assessment. The waste acceptance criteria shall specify the chemical, physical, radiological, mechanical, biological and other characteristics of waste, waste forms unpacked waste and packages that will be...” | MAJOR | Where a licensee (waste generator) engages the service of another licensee to accept, process, store and dispose of waste, the service providing licensee prescribes the waste acceptance criteria for both Routine Waste and Non-Routine Waste. |
| 17. | 7.1 | As per comment #1, the 2 nd paragraph does not clearly state that what is listed is in order of preference and inappropriately links “reduce volume and radioactivity content.” The word “some” is not needed” in the 3 rd paragraph. It precludes the potential for all waste to be cleared in this manner. | Clarify the order of preference and amend the 2 nd paragraph to read, “The licensee should shall consider where practicable the waste hierarchy in the management of radioactive waste, including prevent generation, reduce volume, and radioactivity content ...” Delete the word “some” in the 3 rd paragraph. | Clarification | |
| 18. | 7.3 | The section on processing is not complete. | Amend to state that any processing of waste is subject to the waste acceptance criteria of the party licensed to receive, store and dispose of waste. | MAJOR | A licensee’s option to process waste may be constrained by its commercial agreement with another licensee. Any proposal or initiative to process waste |

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| | | | | to change its physical form, characteristics or packaging is subject to the other licensee's review and approval to be compliant with prescribed waste acceptance criteria for receipt, storage and disposal. |
| 19. | 7.3 | As per Comment #1, the requirement is unclear in the first paragraph. What demands? | Delete or clarify. Unclear how to demonstrate compliance | Clarification |
| 20. | 7.5 | As per comment #1, clarity is needed for this section. Can decay storage take place at final disposal, with a view of limiting the number of times waste is handled? Is segregation a requirement or recommendation what is the expectation? | Clarify. Decay may not be until "final disposal." Licensees suggest using "disposition." | Clarification |
| 21. | 7.5 | As per comment #2, the section on storage needs to be clarified. The requirement to differentiate 'staging' versus 'storing' should be broadened. As an example, for Routine LLW and LLW, a licensee can hold or stage the waste pending out-of-facility shipment. | Amend to read, "The licensee shall store, or make arrangements for the storage of, radioactive waste ..." | Clarification |
| 22. | 7.6 | The licensee shall dispose of radioactive waste safely, in a manner that provides for the protection of people and the environment, and in accordance with regulatory requirements. | Amend to read, "The licensee shall dispose of radioactive waste safely, in a manner that provides for the protection of people and the environment, and in accordance with regulatory requirements at the time of the licence application." | Clarification |
| 23. | 7.6 | As per comment #2, the section on disposal needs to be clarified. | Amend to read, "The licensee shall dispose of, or make arrangements for the disposal of, radioactive waste ..." | Clarification |

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| 24. | 8 | Industry has concerns with the opening sentence in the section on Waste Packages. Not all containers will be for storage <i>and</i> disposal as this seems to imply. | Amend the 1 st sentence to read, "The licensee shall use engineered waste packages as required to contain radioactive waste in accordance with applicable regulations, both during normal operation and in accident conditions of its intended use. | MAJOR | Not all licensees engineer their own packages; and/or not all packages are required to be engineered. |
| 25. | 9.1 | Saying safety case and safety assessment is not required. By maintaining an up to date safety case, the safety assessment would have to be up to date. In addition, more than just a safety assessment would go into a safety case. There would be multiple supporting documents that would have to be kept up to date. | Delete "and supporting safety assessment" | Clarification | |
| 26. | 9.1, 10.1, 10.2, 10.5 | Draft REGDOCs are mentioned in these sections. As a matter of principle, draft REGDOCs should only reference other REGDOCs that are currently published and not out for review. Otherwise, approved requirements may not be fully understood and informed comments cannot be provided. | Cite only currently published versions of REGDOCs. | Clarification | |
| 27. | 9.3 | As per comment #2, this section applies to facility states that may not be applicable to all waste management storage facilities. The requirements should apply to only new facilities. | Amend to read, "The licensee shall design the new storage facilities to fulfill the fundamental applicable safety functions for the states defined for the facility during normal operation, anticipated operational occurrences, design basis accidents and design extension conditions , as follows | MAJOR | The execution of additional work for operating states beyond those of the analysis is required in the licenses basis. |
| 28. | 9.4 | This should be focused on SSC "important to safety." Other equipment is an operational issue only and should not be a nuclear safety concern. | Specify "SSC important to safety" | MAJOR | Prevents increased commissioning requirements on systems that are not safety related. |
| 29. | 9.4 | As per comment #1, clarity is sought on the 3 rd paragraph. Commissioning requirements may be met through other means other than testing. What are "conditions of authorization" and where are they? | Amend to read, "The licensee shall verify that the equipment or SSCs important to safety perform as per design performance criteria . Upon the completion of commissioning, the licensee shall produce a final commissioning report. The report shall provide assurance that all licence conditions | MAJOR | The phrase "conditions of authorization" is not defined and will make it difficult for licensees to comply and CNSC inspectors to audit against. |

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| | | | <p>have been satisfied. document: the as-built status of the facility; the testing conducted with evidence to support the successful completion of the testing; and, any modifications made to the facility or to procedures during construction. The report shall provide assurance that all the conditions of authorization have been satisfied.</p> | | |
| 30. | 9.5 | As per comment #1, licensees have concerns with the clarity of the final paragraph on page 8. | Amend to read, "The licensee should maintain, test and inspect in accordance with the design intent." the facility at a frequency that ensures that the reliability of the equipment remains high and that the effectiveness of the systems remain in accordance with the design intent for the facility. | Clarification | |
| 31. | 10 | A graded approach could be applied to the waste facility in consideration of such things as the waste type to be managed and hazards or consequences. | Suggest adding wording to clearly enable a graded approach to be applied based on waste type. | Clarification | |
| 32. | 10.1 | <p>This section could be clarified in a number of small ways.</p> <ul style="list-style-type: none"> • As per comment #2, the licensee shall develop, implement, and maintain a safety case and supporting safety assessment for the entire lifecycle of a waste management disposal facility. This should include Post Closure assessments. • Second paragraph – why the options for design and not the design itself? • Safe facility operation is not a function. • As per comment #1, what is meant by "classify SSC"? • The 4th paragraph is a duplication of existing licensing processes and other regulatory documents | <p>Amend to:</p> <ul style="list-style-type: none"> • Make it clear this also includes Post Closure Safety assessments • Change from "options for design" to "design" • Change function to "barriers" • Make requirement more specific: SSC important to safety and "normal" SSC. • Delete the 4th paragraph. | Clarification | |

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| 33. | 10.1 & 9.1 | As per comment #2, it is unclear if there is a difference between Long Term Storage and a Disposal Facility. Confusingly, both sections reference draft REGDOC-2.11.1 Waste Management Volume III Safety Case for Long Term Radioactive Waste Management. | Licensees suggest the requirements for Long Term Waste Management be only specified in one place. Or, additional guidance could be added to make it clear what the differences in requirements for the two different facilities | Clarification |
| 34. | 10.2 | As currently written, this section inappropriately suggests that only DGRs are an acceptable method of waste disposal. Licensees would like to see statements here referring to other methods of waste disposal, especially as earlier sections mention near surface and intermediate depth disposal. This should also describe anticipated levels of detail required for various types of waste and disposal methods. | For clarity and to avoid confusion, licensees suggest removing the second paragraph. For additional clarity, industry believes the phrase “long-term waste management” should be used instead of “disposal” where appropriate throughout the document. | Clarification |
| 35. | 10.3 | As per comment #1, licensees believe this section and its bullets are unclear and its requirements are vague. For instance, paragraphs 6 and 7 do not seem to be properly sequenced. As per comment #2, licensees also believe the bullets can be revised to better relate to different phases of a facility’s lifecycle. For the second list of bullets, some SSCs will be “closed” prior to DGR closure (as per comment #2). In some cases, amounts of water could be bounded by other evidence and calculated as opposed to measured. | Enhance clarity in future drafts by: <ul style="list-style-type: none"> • Moving paragraph 6 & 7 to the beginning of this section • Explicitly stating the bullets relate to different phases of the facility’s lifecycle and this is an iterative process that takes place during the design. • Amending Bullet #1 of the first bullet list to read, “to be emplaced in accordance with the expected performance of the facility.” • Amending Bullet #1 of the second list to read, “allows for the measurement or calculations of water in safety-significant SSCs prior to closure of the specific SSC” • Updating the second list of bullets to only | Clarification |

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| | | <p>Also, the second list of bullets is a mixture of high-level requirements and specific design requirements, which can lead to confusion.</p> <p>The scope of the final paragraph needs to be more clearly defined to ensure engineering requirements and monitoring programs are appropriate and commensurate with potentials risks.</p> | <p>include high-level requirements. Examples of specific requirements for systems important to safety can be cited, but the actual requirements related to the hazards (i.e. the type of waste, low level, intermediate, fuel etc.) must be clear.</p> <ul style="list-style-type: none"> Ensuring the bullets refer to radioactive waste, not radioactive material Amend the final paragraph to read, "The licensee shall design the disposal facility to facilitate the inspection, monitoring, testing, and maintenance of the systems important to safety facility and the elements of the host environment that are credited in the safety case, as applicable. The licensee must justify to the CNSC the aspects that do not apply." | Clarification | |
| 36. | 10.4 | <p>As per comment #1, the 1st paragraph is unclear and should focus on SSC's important to safety, not equipment of an operational nature and not a nuclear safety concern. The 1st sentence is self-evident and not needed.</p> <p>The 2nd paragraph is not practical. If site preparation is undertaken, the local environment will be impacted. The impact of construction needs to be considered and any geological features credited by the facility design must be shown not to be adversely impacted during construction.</p> | <p>For clarity:</p> <ul style="list-style-type: none"> Specify "SSC important to safety" Amend the 1st paragraph to read, "The licensee shall construct the disposal facility in accordance with its design. The licensee shall have sufficient evidence that the closure design will function as intended before construction activities commence Amend the 2nd sentence of the 2nd paragraph to read, "The licensee should perform all construction activities so that containment and isolation features of the host environment as credited in the safety case are preserved." The licensee shall verify that the equipment meets design specifications requirements and perform commissioning validation activities to demonstrate that the equipment and SSCs perform as expected in support of operations." | Clarification | |

Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste

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| 37. | 10.6 | The title is misleading. Disposal facilities are not normally decommissioned. Ancillary and support structures needed during operations are the elements that are decommissioned. The second paragraph can be clarified. | Change the title to 'Closure and Decommissioning of a waste management disposal facility' Amend the 1 st sentence of the 2 nd paragraph to read, "The licensee shall close the disposal facility in a way that maintains the integrity of those SSCs that perform safety functions that have been shown to be important to safety in the after post-closure phases." | Clarification | |
| 38. | 10.7 | As per comment #1, this section could be edited slightly to enhance clarity. | Amend the final bullet to read, "maintain records of the information on the disposal facility, the site and the environment its surroundings Amend the final sentence to read, "After closure and until removal from CNSC licensing reversion of the licence , the licensee shall remain responsible for surveillance of the disposal system and for any remedial action that might be required. Amend to clarify which statement is accurate in the last paragraph what requirements apply to the "institutional control period." | Clarification | |
| 39. | 10.8 | The last paragraph states "active controls may be followed eventually by passive controls," making the implementation of passive controls sound optional. However, Section 10.1 says, "The licensee shall site, design, construct, commission, operate and close the disposal facility in such a way that safety is ensured by passive means to the fullest extent possible" These two statements seem at odds with one another. The phrase "institutional control period" is used for the first time in section 10.8, but its requirement is unclear. The phrase should also be in 10.6 and 10.7. | Amend the 2 nd bullet to read, "operation and maintenance of a monitoring system to provide early warning of the release of radionuclides will be prepared and accepted in support of the decommission licence before they leave the site boundary" Amend the 3 rd bullet to read, "Replace this statement with "Implementation of active controls, where required, to prevent unauthorized access to the site." | Clarification | |

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| | | <p>The 2nd bullet's expectations for actions to be taken during the institutional control period should be clarified. Surface and groundwater pathways are site-specific and the "site boundary" is open to interpretation and unknown until a specific site and the final repository are assessed.</p> <p>In the 3rd bullet, the use of active controls is contrary to the Province of Saskatchewan's IC program that is based on an expectation that passive controls will be used wherever possible to reduce future maintenance requirements of a site in the program. The goal of many decommissioning plans is to allow future land users to have "unrestricted access to the site".</p> <p>Regarding the note in the final sentence - controlling future land use permitting is <i>not</i> controlled access.</p> | <p>Remove the note on active controls.</p> | | |
| 40. | Glossary | <p>As per comment #1, there are other terms that are not defined in REGDOC-3.6 that would be useful for this glossary.</p> | <p>Define: SSCs - Systems Important to Safety</p> | <p>Clarification</p> | |

June 28, 2019

NK21-CORR-00531-15195
NK29-CORR-00531-15981
NK37-CORR-00531-03228

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

Dear Mr. Torrie:

Bruce Power comments on draft REGDOC-2.11.1,
Waste Management, Volume I: Management of Radioactive Waste

The purpose of this letter is to provide Bruce Power's comments on draft *REGDOC-2.11.1, Waste Management, Volume 1: Management of Radioactive Waste*.

Following a collaborative review of the draft document with our industry peers, we have compiled a series of detailed observations and requests for clarification in Attachment A for the CNSC's consideration. In general, licensees found the language in some sections of the draft to be either unclear or imprecise. In some areas, references were made to regulatory documents that have not yet been published and key terms were either not defined or their definitions not included or aligned with those in *REGDOC-3.6, Glossary of CNSC Terminology*.

More specifically, Bruce Power encourages the CNSC to clearly differentiate between a "waste generator" and a "waste owner" by amending the opening paragraph in Section 2 to read, "Under Canada's Radioactive Waste Policy Framework, waste owners are required to ensure the safe and secure management of radioactive waste and to make arrangements for its long-term management. *This includes waste generated by another licensee and transferred under a commercial agreement to a waste owner to process, store and dispose.*"

This would clarify that radioactive waste management may be the responsibility of more than one licensee and that robust agreements are in place to ensure it is managed safely and securely. We believe clear, accessible language equates to improved compliance and public understanding of the scientific rigor that forms industry's waste management programs.

NK21-CORR-00531-15195
NK29-CORR-00531-15981
NK37-CORR-00531-03228

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Mr. B. Torrie

June 28, 2019



If you require further information or have any questions regarding this submission, please contact Steve Cannon, Senior Strategist, Regulatory Affairs, at (519)-361-6559, or steve.cannon@brucepower.com.

Yours truly,

Maury Burton
Senior Director, Regulatory Affairs
Bruce Power

cc: CNSC Bruce Site Office (Letter only)

Attach.

Attachment A

**Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I:
Management of Radioactive Waste**

Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste

| # | Section | Industry Issue | Suggested Change (if applicable) | Major Comment/ Clarification | Impact on Industry, if major comment |
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| 1. | General | Licensees found the language in some sections of the draft REGDOC to be either unclear or imprecise, which made it challenging at times to offer a thorough, contextual review. In some sections, reviewers found references to regulatory documents that have not yet been published and alignment to related documents such as IAEA standards to be unclear. In addition, several key terms were either not defined or their definitions not included or aligned with those in <i>REGDOC-3.6, Glossary of CNSC Terminology</i> . | Given the public interest in the subject, industry encourages the CNSC to ensure the language used to describe requirements and guidance in future drafts is clear to all interested readers. As those responsible for the safe management of radioactive waste, licensees appreciate the scientific basis that supports the CNSC's requirements in this REGDOC. However, industry also appreciates the need for this technical information to be presented in a way that is accessible to people of all levels of technical expertise. | MAJOR | A lack of clarity can inadvertently lead to misunderstanding of requirements and the reasons for them. Clear, accessible language equates to improved compliance and public understanding of the scientific rigor that forms industry's waste management programs. |
| 2. | General | The draft REGDOC does not clearly distinguish between facility types or the requirements that apply to them at various times in their lifecycle. For context, a disposal facility generally has the following lifecycle phases: siting; construction; operation; pre-closure monitoring; closure; decommissioning of ancillary facilities; post-closure. However, for some deep geologic repositories (DGR), SSCs will be "closed" during the operational phase (e.g., used fuel containers and placement panels) and not accessible prior to closure of the DGR and during the post-closure phase. Applicability of requirements for these timeframes need to clear and should not inadvertently create other safety issues. | The REGDOC should be more specific about the timeframe when requirements apply. For example, there are many references to "prior to closure" that should be clarified and there are requirements that should not apply to the post-closure phase. Please see specific examples in the table below for items that could be amended for clarity | MAJOR | Unclear expectations could challenge compliance verification. This could also inadvertently result in: additional requirements being applied to low-risk facilities with no commensurate impact on safety; confusion for members of the public as to expected requirements for facilities. |

Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste

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| 3. | 1.1 | <p>As per comment #1, the purpose of the document is unclear as currently written and could generate confusion regarding which requirements or guidance applies to various facility types, such as storage and disposal facilities.</p> <p>Licensees believe the purpose should clearly tell readers which type (low, intermediate, or high-level) radioactive waste to which the guidance applies. It should also recognize there are varying opinions and conventions on what constitutes storage versus disposal. (<i>REGDOC-3.6, Glossary of CNSC Terminology</i> does not provide full definitions.</p> | <p>Amend to read, "The purpose of this document is to provide requirements and guidance:</p> <ul style="list-style-type: none"> • on radioactive waste management applicable to different types of CNSC licensees • related to CSA Group standards applicable to radioactive waste management • supplemental to specific topics in radioactive waste management standards. <p>Requirements and guidance will vary depending on the level of radioactive waste being managed and the facility type, such as storage and disposal facilities, using a graded approach commensurate with their relative risks."</p> <p>For additional clarity, definitions of storage and disposal facilities should be added to <i>REGDOC-3.6, Glossary of CNSC Terminology</i> and referenced in this REGDOC.</p> | MAJOR | <p>An unclear purpose could lead to incorrect assumptions regarding requirements for facility type – storage vs disposal. For context, the time period for storage facilities is measured in decades as opposed to centuries for disposal facilities.</p> |
| 4. | 1.2 | <p>As per comment #1, the Scope is not entirely clear to all readers. For instance, it does not align with Section 24 of the NSCA, which says activities are licensed, not facilities. Nor does it define the term "waste management" or highlight what the "end goal" is with respect to waste management facilities. This could lead licensees to define different "end goals" and, in turn, drive the solutions to address waste management.</p> | <p>Amend the 1st sentence to read, "The requirements and guidance in this document pertain to CNSC-licensed activities facilities..."</p> <p>Define the terms "waste management" and "end goal" to ensure requirements are clear for licensees and CNSC inspectors.</p> | Clarification | |
| 5. | 1.3 | <p>As per comment #1, the list of relevant legislation is incomplete.</p> | <p>Add references to the <i>Nuclear Substances and Radiation Devices Regulations</i> and the <i>Nuclear Fuel Waste Act</i>.</p> | Clarification | |

Bruce Power comments on draft REGDOC-2.11.1, Waste Management, Volume I: Management of Radioactive Waste

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| 6. | 2 | As per comment #2, the REGDOC should differentiate between a 'waste generator' and a 'waste owner.' | MAJOR | The management of radioactive waste may be the responsibility of more than one licensee. Reinforcing this in the REGDOC would help clarify the roles and responsibilities for waste generators and waste owners. |
| 7. | 2.1 | As per comment #1, the CSA standard for decommissioning is missing from the list of complementary documents. | Clarification | |
| 8. | 3 | As per comment #1, the definition of radioactive waste does not align with that in REGDOC 3.6, which says "the owner declares to be waste" vs "no further use if foreseen." This introduces a question as to who must foresee "no further use" of the waste. As per Comment #2, it is not clear that the steps listed for the management of radioactive waste may be the responsibility of more than one licensee and may involve transfers/hand offs between licensees. Also, the fact that not all radioactive substances will become radioactive waste is not identified in the background. Some substances may simply decay away to the point the waste is no longer radioactive waste. | MAJOR | Unclear expectations could challenge compliance verification. Generation, control and handling are typically in-facility activities. Processing may be in-facility or it may be contracted to an external party. Storage, transport and disposal may be managed by the licensee who generated the waste, but may also be managed by a contracted party. As currently written, the background section potentially limits the ability for waste to decay to safe levels and be treated as non-radioactive waste. |
| 9. | 4 | The section on General Requirements is unclear in many areas. Bullet #1 requires all licensees to find long-term management solutions that "avoid imposing an undue burden on future generations." While licensees understand the intent of this phrase, it | MAJOR | Generally, a lack of clarity may inadvertently lead public expectations for low-level waste to be the same as that for high-level waste. Specifically, for the 1 st bullet, licensees do not have the authority to define |

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| | <p>is a policy statement inappropriately embedded in a REGDOC. This requirement is not part of the federal policy on radioactive waste management.</p> <p><i>Bullet #3</i> needs to be related to specific waste types so licensee and the CNSC can demonstrate to the public that waste is being safely managed in a manner commensurate with the potential hazard of the waste.</p> <p>Bullet #4 is unclear as to what aspects are interdependencies to be taken in account for. Nor is it clear if “evaluation” refers to CNSC inspections or internal self-assessments by licensees.</p> <p>Bullet #5 should not place the emphasis on the documentation. The licensee does not “implement the documentation” – they implement and document the program, procedures, etc. This statement should also point to guidance on what is considered acceptable as per the graded approach.</p> <p>Bullet #6: When is contaminated material held in storage no longer “useful” and is designated as waste?</p> <p>Bullet #7: The use of OPEX, lessons learned and advances in science and technology should be commensurate with the risk associated with waste. If the risk is very low, it should not be a requirement to use “advances in science and</p> | <p>Bullet #3: Clarify the specific waste types this bullet relates to.</p> <p>Bullet #4: Clarify what aspects of interdependencies need to be documented and who is expected to “evaluate” and by what means. Amend to say licensees should consider all known steps, but the integration waste management systems should detail how interdependencies will be addressed.</p> <p>Bullet #5: Amend to read, “develop, document and implement programs, procedures and instructions to ensure the safety of all waste management activities for which they are responsible commensurate with the scale of the licensed facility activity and the inventory.”</p> <p>Bullet #6: Clearly state when contaminated material is designated as waste. Apply the definition of “waste.”</p> <p>Bullet #7: Amend to align with the 5th bullet and read: “use operational experience, lessons learned from other similar facilities or activities, and advances in science and technology in an effort to continuously improve the safety of the waste management facility or activity commensurate with the scale of the licensed activity and the inventory.”</p> <p>Bullet #8: Amend to clearly state the requirement to provide information is upon request/audit.</p> | <p>“undue burden” on future generations. That responsibility rests with government.</p> <p>Regarding the 5th bullet, industry has had challenges in the past with applying graded approaches, which causes uncertainty in the licensing process when the regulator does not accommodate this approach for low-risk activities.</p> <p>Regarding the 7th bullet, the time and resources required to identify truly relevant OPEX, lessons learned and advances in science and technology for licensees who generate low-level radioactive waste, and are not Waste Management Facilities, is not always commensurate with the impact on nuclear safety. A graded approach would improve this requirement.</p> |
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| | | technology” for continuous improvement. Bullet#8: Reporting requirements are not well defined/ specified. Mandatory and periodic versus discretionary and only upon request? | | | |
| 10. | 4 & 5 | For clarity, the General Requirements in Section 4 and requirements in Section 5 on the Waste Management Program should include the option/ability of a licensed waste generator to contractually (commercially) engage the services of other licensed parties to transport, process, store and dispose of radioactive waste. The contractual arrangement might, in some instances, involve the transfer of care & custody, or of title, to certain waste; i.e. a change waste ownership & going forward responsibility. | Amend the 1 st sentence in Section 4 to read, “All licensees who manage radioactive waste they generate or assume ownership for shall:” Amend the 1 st paragraph of Section 5 to read, “The licensee shall develop and implement a waste management program to control the management of radioactive waste where it is generated, handled, processed, stored, transported or disposed of. Licensees may contractually engage another licensed party to carry out some or all of these activities.” | MAJOR | The management of radioactive waste may be the responsibility of more than one licensee. Reinforcing this in the REGDOC helps clarify the roles and responsibilities for waste generators and waste owners. |
| 11. | 5 | Facilities that require a waste management program comply with CSA N286-12 as part of their licence. As such, this REGDOC should only capture management system requirements that are incremental to the requirements in N286-12 to minimize duplication and inconsistencies with general management system requirements. It should also be clear that N286 does not provide information on how to manage programs, but how to establish an integrated management system. | Remove the first 3-bullets as they are already addressed in licensee’s LCHs for Management Systems. Amend the final sentence in the section to read, “For more information on managing programs management systems, consult REGDOC-2.1.1, Management System [6], and CSA N286, Management system requirements for nuclear facilities [7].” | Clarification | |
| 12. | 5 | As per comment #1, clarity is sought for several of the bullet points in this section. Bullet #5: clarify what is meant by “address all waste streams.” Not all waste streams need to be addressed, but they should be identified so | Bullet #5: Amend to read, “manage address all waste streams associated with or potentially contaminated by nuclear substances” Bullet#6: The requirements regarding the waste | Clarification | |

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| | | <p>an informed decision can be made to implement actions when required.</p> <p>Bullet #6 requires the licensee to consider the waste 'hierarchy' but this is the first time it is mentioned and the term is not defined. Later, Section 7.1 lists four items in the 'hierarchy' (prevent generation, reduce volume and radioactivity content, reuse and recycle, dispose).</p> | <p>management hierarchy need to be clarified either in the text or in the glossary.</p> <p>If the hierarchy in 7.1 is to be addressed in section 5, it should be clearly stated.</p> | | |
| 13. | 6.1 | <p>As per comment #1, the section on waste classification is not clear or consistent. For example:</p> <ul style="list-style-type: none"> Historically, not all waste management facilities have required safety assessments. Is this phrase being used generically? The 4th bullet is a potentially misleading or biasing statement. There are current plans to place LLW in aboveground mounds. Does the 5th bullet consider acid rock drainage and the need for subaqueous disposal? Subaqueous disposal has been employed at Elliott Lake. Also, has there been no backfilling of underground uranium mines in Canada? The current wording does not provide sufficient guidance as to the range of factors that should be considered when determining containment and isolation requirements, which may lead to inappropriate requirements. The section does not make it clear who classifies the waste. Canada already has four | <p>Amend the 2nd sentence of the 1st paragraph to read, "Where appropriate, the classification system shall be based on the specific safety case and safety assessment required for the waste management facility or activity.</p> <p>Amend 4th bullet to read, "Due to its long-lived radionuclides, LLW generally may require a higher level of containment and isolation than can be provided in near surface repositories. "</p> <p>Amend the 5th bullet to read, "the general Long-term management in near-surface facilities adjacent to mines and mills is the only one of the more practical options for these wastes, given the large volumes of waste generated in mining and milling operations.</p> <p>Industry suggests this section should list factors like waste form (solid, liquid, gas etc.) that should be considered when determining the degree of containment and isolation.</p> <p>It should also clarify who classifies waste and add to the definition of LLW eg >2mSv/hr near contact.</p> | MAJOR | <p>A lack of clarity can inadvertently lead to misunderstanding of requirements and the reasons for them by licensees, the regulator and the public.</p> <p>For this section, it may result in licensee's developing unique classifications and unintended confusion when discussing waste. If potential management and disposal approaches are to be cited, this document should do so for all types of waste. Currently, it only provides this information for some of the waste types.</p> |

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| | | <p>main waste classifications, but the REGDOC indicates licensees should classify the waste.</p> <ul style="list-style-type: none"> • In some cases potential “disposal” solutions are presented. In others, they are not. • There is no reference for source of radioactive waste classes and a lack of clarity on the definition of ILW. | | | |
| 14. | 6.2 | <p>As per comment #1, there is an opportunity to clarify the language and intent of the 1st paragraph.</p> | <p>Amend the 1st paragraph to read, “The licensee shall perform waste characterization at the various appropriate step(s) for the the management of radioactive waste the specific radioactive waste. Waste characterization shall include assessing the physical, mechanical, chemical, biological, thermal and/or radiological properties of the waste material, as applicable. The licensee must justify to the CNSC the aspects that do not apply. The licensee shall maintain detailed records of the characterization performed.”</p> | MAJOR | <p>As written, the first requirement has no clear purpose. Clarity is needed as to why the characterization is performed and at what stage(s) the characterization should be performed. As written, this may result in characterization being undertaken when not required and/or characterization not being performed when required. In the 3rd sentence, by default, aspects that do not apply will be ruled out during the various steps of the characterizations and recorded in detail. As written, licensees are being asked to prove a negative, which is not clear direction. This passage also raises a series of unintended questions: At what stage(s) of the full life cycle waste management process is documented waste characterization applicable? If it is primarily for long term storage and disposal, the requirement is imposed upon a generator by the service provider of waste storage and disposal services. What exactly are the requirements for</p> |

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| | | | | | satisfactory characterization of waste? Are the requirements universal and standardized across the industry, or are they variable by generator / service provider. |
| 15. | 6.3 | This entire section on WAC is only applicable to Waste Storage Facilities, or Waste Disposal Facilities. As per Section 1.2 (Scope), the entirety of Section 6 is applicable to all licensees that have a waste management program. | Move Section 6.3 to new subsections in Sections 9 and 10. | Clarification | |
| 16. | 6.3 | The 1 st paragraph is incomplete as written with regard to waste ownership and generation. Also, there is no need to include “unpacked waste.” This is covered by “waste.” Unpacked waste will be accepted for handling, processing, storage, transport and/or disposal at the facility or place of the activity. Clarity is also sought with respect to expectations for the term “place of activity.” | Amend to read, “ For waste it generates or for which it assumes ownership , the licensee shall develop waste acceptance criteria, consistent with and derived from the safety case and safety assessment. The waste acceptance criteria shall specify the chemical, physical, radiological, mechanical, biological and other characteristics of waste, waste forms unpacked waste and packages that will be...” | MAJOR | Where a licensee (waste generator) engages the service of another licensee to accept, process, store and dispose of waste, the service providing licensee prescribes the waste acceptance criteria for both Routine Waste and Non-Routine Waste. |
| 17. | 7.1 | As per comment #1, the 2 nd paragraph does not clearly state that what is listed is in order of preference and inappropriately links “reduce volume and radioactivity content.” The word “some” is not needed” in the 3 rd paragraph. It precludes the potential for all waste to be cleared in this manner. | Clarify the order of preference and amend the 2 nd paragraph to read, “The licensee should shall consider where practicable the waste hierarchy in the management of radioactive waste, including prevent generation, reduce volume, and radioactivity content ...” Delete the word “some” in the 3 rd paragraph. | Clarification | |
| 18. | 7.3 | The section on processing is not complete. | Amend to state that any processing of waste is subject to the waste acceptance criteria of the party licensed to receive, store and dispose of waste. | MAJOR | A licensee’s option to process waste may be constrained by its commercial agreement with another licensee. Any proposal or initiative to process waste |

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| | | | | to change its physical form, characteristics or packaging is subject to the other licensee's review and approval to be compliant with prescribed waste acceptance criteria for receipt, storage and disposal. |
| 19. | 7.3 | As per Comment #1, the requirement is unclear in the first paragraph. What demands? | Delete or clarify. Unclear how to demonstrate compliance | Clarification |
| 20. | 7.5 | As per comment #1, clarity is needed for this section. Can decay storage take place at final disposal, with a view of limiting the number of times waste is handled? Is segregation a requirement or recommendation what is the expectation? | Clarify. Decay may not be until "final disposal." Licensees suggest using "disposition." | Clarification |
| 21. | 7.5 | As per comment #2, the section on storage needs to be clarified. The requirement to differentiate 'staging' versus 'storing' should be broadened. As an example, for Routine LLW and LLW, a licensee can hold or stage the waste pending out-of-facility shipment. | Amend to read, "The licensee shall store, or make arrangements for the storage of, radioactive waste ..." | Clarification |
| 22. | 7.6 | The licensee shall dispose of radioactive waste safely, in a manner that provides for the protection of people and the environment, and in accordance with regulatory requirements. | Amend to read, "The licensee shall dispose of radioactive waste safely, in a manner that provides for the protection of people and the environment, and in accordance with regulatory requirements at the time of the licence application." | Clarification |
| 23. | 7.6 | As per comment #2, the section on disposal needs to be clarified. | Amend to read, "The licensee shall dispose of, or make arrangements for the disposal of, radioactive waste ..." | Clarification |

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| 24. | 8 | Industry has concerns with the opening sentence in the section on Waste Packages. Not all containers will be for storage <i>and</i> disposal as this seems to imply. | Amend the 1 st sentence to read, "The licensee shall use engineered waste packages as required to contain radioactive waste in accordance with applicable regulations, both during normal operation and in accident conditions of its intended use. | MAJOR | Not all licensees engineer their own packages; and/or not all packages are required to be engineered. |
| 25. | 9.1 | Saying safety case and safety assessment is not required. By maintaining an up to date safety case, the safety assessment would have to be up to date. In addition, more than just a safety assessment would go into a safety case. There would be multiple supporting documents that would have to be kept up to date. | Delete "and supporting safety assessment" | Clarification | |
| 26. | 9.1, 10.1, 10.2, 10.5 | Draft REGDOCs are mentioned in these sections. As a matter of principle, draft REGDOCs should only reference other REGDOCs that are currently published and not out for review. Otherwise, approved requirements may not be fully understood and informed comments cannot be provided. | Cite only currently published versions of REGDOCs. | Clarification | |
| 27. | 9.3 | As per comment #2, this section applies to facility states that may not be applicable to all waste management storage facilities. The requirements should apply to only new facilities. | Amend to read, "The licensee shall design the new storage facilities to fulfill the fundamental applicable safety functions for the states defined for the facility during normal operation, anticipated operational occurrences, design basis accidents and design extension conditions , as follows | MAJOR | The execution of additional work for operating states beyond those of the analysis is required in the licenses basis. |
| 28. | 9.4 | This should be focused on SSC "important to safety." Other equipment is an operational issue only and should not be a nuclear safety concern. | Specify "SSC important to safety" | MAJOR | Prevents increased commissioning requirements on systems that are not safety related. |
| 29. | 9.4 | As per comment #1, clarity is sought on the 3 rd paragraph. Commissioning requirements may be met through other means other than testing. What are "conditions of authorization" and where are they? | Amend to read, "The licensee shall verify that the equipment or SSCs important to safety perform as per design performance criteria . Upon the completion of commissioning, the licensee shall produce a final commissioning report. The report shall provide assurance that all licence conditions | MAJOR | The phrase "conditions of authorization" is not defined and will make it difficult for licensees to comply and CNSC inspectors to audit against. |

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| | | | <p>have been satisfied. document: the as-built status of the facility; the testing conducted with evidence to support the successful completion of the testing; and, any modifications made to the facility or to procedures during construction. The report shall provide assurance that all the conditions of authorization have been satisfied.</p> | | |
| 30. | 9.5 | As per comment #1, licensees have concerns with the clarity of the final paragraph on page 8. | Amend to read, "The licensee should maintain, test and inspect in accordance with the design intent." the facility at a frequency that ensures that the reliability of the equipment remains high and that the effectiveness of the systems remain in accordance with the design intent for the facility. | Clarification | |
| 31. | 10 | A graded approach could be applied to the waste facility in consideration of such things as the waste type to be managed and hazards or consequences. | Suggest adding wording to clearly enable a graded approach to be applied based on waste type. | Clarification | |
| 32. | 10.1 | <p>This section could be clarified in a number of small ways.</p> <ul style="list-style-type: none"> • As per comment #2, the licensee shall develop, implement, and maintain a safety case and supporting safety assessment for the entire lifecycle of a waste management disposal facility. This should include Post Closure assessments. • Second paragraph – why the options for design and not the design itself? • Safe facility operation is not a function. • As per comment #1, what is meant by "classify SSC"? • The 4th paragraph is a duplication of existing licensing processes and other regulatory documents | <p>Amend to:</p> <ul style="list-style-type: none"> • Make it clear this also includes Post Closure Safety assessments • Change from "options for design" to "design" • Change function to "barriers" • Make requirement more specific: SSC important to safety and "normal" SSC. • Delete the 4th paragraph. | Clarification | |

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| 33. | 10.1 & 9.1 | As per comment #2, it is unclear if there is a difference between Long Term Storage and a Disposal Facility. Confusingly, both sections reference draft REGDOC-2.11.1 Waste Management Volume III Safety Case for Long Term Radioactive Waste Management. | Licenses suggest the requirements for Long Term Waste Management be only specified in one place. Or, additional guidance could be added to make it clear what the differences in requirements for the two different facilities | Clarification |
| 34. | 10.2 | As currently written, this section inappropriately suggests that only DGRs are an acceptable method of waste disposal. Licensees would like to see statements here referring to other methods of waste disposal, especially as earlier sections mention near surface and intermediate depth disposal. This should also describe anticipated levels of detail required for various types of waste and disposal methods. | For clarity and to avoid confusion, licensees suggest removing the second paragraph. For additional clarity, industry believes the phrase “long-term waste management” should be used instead of “disposal” where appropriate throughout the document. | Clarification |
| 35. | 10.3 | As per comment #1, licensees believe this section and its bullets are unclear and its requirements are vague. For instance, paragraphs 6 and 7 do not seem to be properly sequenced. As per comment #2, licensees also believe the bullets can be revised to better relate to different phases of a facility’s lifecycle. For the second list of bullets, some SSCs will be “closed” prior to DGR closure (as per comment #2). In some cases, amounts of water could be bounded by other evidence and calculated as opposed to measured. | Enhance clarity in future drafts by: <ul style="list-style-type: none"> • Moving paragraph 6 & 7 to the beginning of this section • Explicitly stating the bullets relate to different phases of the facility’s lifecycle and this is an iterative process that takes place during the design. • Amending Bullet #1 of the first bullet list to read, “to be emplaced in accordance with the expected performance of the facility.” • Amending Bullet #1 of the second list to read, “allows for the measurement or calculations of water in safety-significant SSCs prior to closure of the specific SSC” • Updating the second list of bullets to only | Clarification |

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| | | <p>Also, the second list of bullets is a mixture of high-level requirements and specific design requirements, which can lead to confusion.</p> <p>The scope of the final paragraph needs to be more clearly defined to ensure engineering requirements and monitoring programs are appropriate and commensurate with potentials risks.</p> | <p>include high-level requirements. Examples of specific requirements for systems important to safety can be cited, but the actual requirements related to the hazards (i.e. the type of waste, low level, intermediate, fuel etc.) must be clear.</p> <ul style="list-style-type: none"> Ensuring the bullets refer to radioactive waste, not radioactive material Amend the final paragraph to read, "The licensee shall design the disposal facility to facilitate the inspection, monitoring, testing, and maintenance of the systems important to safety facility and the elements of the host environment that are credited in the safety case, as applicable. The licensee must justify to the CNSC the aspects that do not apply." | Clarification | |
| 36. | 10.4 | <p>As per comment #1, the 1st paragraph is unclear and should focus on SSC's important to safety, not equipment of an operational nature and not a nuclear safety concern. The 1st sentence is self-evident and not needed.</p> <p>The 2nd paragraph is not practical. If site preparation is undertaken, the local environment will be impacted. The impact of construction needs to be considered and any geological features credited by the facility design must be shown not to be adversely impacted during construction.</p> | <p>For clarity:</p> <ul style="list-style-type: none"> Specify "SSC important to safety" Amend the 1st paragraph to read, "The licensee shall construct the disposal facility in accordance with its design. The licensee shall have sufficient evidence that the closure design will function as intended before construction activities commence Amend the 2nd sentence of the 2nd paragraph to read, "The licensee should perform all construction activities so that containment and isolation features of the host environment as credited in the safety case are preserved." The licensee shall verify that the equipment meets design specifications requirements and perform commissioning validation activities to demonstrate that the equipment and SSCs perform as expected in support of operations." | Clarification | |

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| 37. | 10.6 | <p>The title is misleading. Disposal facilities are not normally decommissioned. Ancillary and support structures needed during operations are the elements that are decommissioned.</p> <p>The second paragraph can be clarified.</p> | <p>Change the title to 'Closure and Decommissioning of a waste management disposal facility'</p> <p>Amend the 1st sentence of the 2nd paragraph to read, "The licensee shall close the disposal facility in a way that maintains the integrity of those SSCs that perform safety functions that have been shown to be important to safety in the after post-closure phases."</p> | Clarification | |
| 38. | 10.7 | <p>As per comment #1, this section could be edited slightly to enhance clarity.</p> | <p>Amend the final bullet to read, "maintain records of the information on the disposal facility, the site and the environment its surroundings</p> <p>Amend the final sentence to read, "After closure and until removal from CNSC licensing reversion of the licence, the licensee shall remain responsible for surveillance of the disposal system and for any remedial action that might be required.</p> | Clarification | |
| 39. | 10.8 | <p>The last paragraph states "active controls may be followed eventually by passive controls," making the implementation of passive controls sound optional. However, Section 10.1 says, "The licensee shall site, design, construct, commission, operate and close the disposal facility in such a way that safety is ensured by passive means to the fullest extent possible" These two statements seem at odds with one another.</p> <p>The phrase "institutional control period" is used for the first time in section 10.8, but its requirement is unclear. The phrase should also be in 10.6 and 10.7.</p> | <p>Amend to clarify which statement is accurate in the last paragraph what requirements apply to the "institutional control period."</p> <p>Amend the 2nd bullet to read, "operation and maintenance of a monitoring system to provide early warning of the release of radionuclides will be prepared and accepted in support of the decommission licence before they leave the site boundary"</p> <p>Amend the 3rd bullet to read, "Replace this statement with "Implementation of active controls, where required, to prevent unauthorized access to the site."</p> | Clarification | |

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| | | <p>The 2nd bullet's expectations for actions to be taken during the institutional control period should be clarified. Surface and groundwater pathways are site-specific and the "site boundary" is open to interpretation and unknown until a specific site and the final repository are assessed.</p> <p>In the 3rd bullet, the use of active controls is contrary to the Province of Saskatchewan's IC program that is based on an expectation that passive controls will be used wherever possible to reduce future maintenance requirements of a site in the program. The goal of many decommissioning plans is to allow future land users to have "unrestricted access to the site".</p> <p>Regarding the note in the final sentence - controlling future land use permitting is <i>not</i> controlled access.</p> | <p>Remove the note on active controls.</p> | | |
| 40. | Glossary | <p>As per comment #1, there are other terms that are not defined in REGDOC-3.6 that would be useful for this glossary.</p> | <p>Define: SSCs - Systems Important to Safety</p> | <p>Clarification</p> | |