

**REGDOC-2.11.1, Volume III: Comments received in advance of the workshop with civil society organizations and members of the public**

**REGDOC-2.11.1, tome III: Commentaires reçus en vue de l’atelier avec des organisations de société civile et les membres du public**

**Note:** Comments submitted, including names and affiliations are intended to be made public, in the official language in which they are received.

**Remarque :** Les commentaires reçus, y compris les noms et les affiliations, seront rendus publics, dans la langue officielle dans laquelle ils auront été reçus.

	<b>Organization / Organisation</b>	<b>Section</b>	<b>Comment / Commentaire</b>	<b>CNSC Response / Réponse la CCSN</b>
1.	Michael Stephens		<p>My comments on the REGDOCs were pretty basic:</p> <ul style="list-style-type: none"> <li>The need for a much better definition of “storage” in the CNSC glossary (The IAEA definition is clear.)</li> </ul>	<p>Given time constraints, the REGDOC 3.6, <i>Glossary of CNSC Terminology</i> will not be part of the workshop but CNSC staff will consider your comments as part of the next revision of the Glossary. This will be done after the suite of REGDOCs is published in order to incorporate the changes in definitions that were included in those five documents.</p> <p>Please note that we are always seeking greater alignment with IAEA definitions but the scope of workshop does not include comments on the glossary or other CNSC REGDOCs as well.</p>
2.	Michael Stephens		<p>Confusion between the terms “long-term waste management” and “disposal” (e.g., Is a “long-term waste management facility” just another term for long-term <u>storage, from which waste is planned to be retrieved</u> – and <u>not</u> disposal. Are the Port Hope and Port Granby facilities considered to be storage or disposal? I have heard people who should know disagree on the point. Is a <u>closed</u> waste repository still a “waste management” facility? I always thought it was.)</p>	<p>The definitions for these terms are found in CSA N292.0, <i>General Principles for the Management of Radioactive Waste and Irradiated Fuel</i>:</p> <p><b>Disposal</b> — emplacement of radioactive waste or irradiated fuel in a repository without the intention of retrieval and in a way that prevents or limits the release of the radioactive material into the environment.</p> <p><b>Long-term management</b> — a coherent set of activities required to ensure controlled containment and isolation of radioactive material while in long-term storage or in a</p>

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				disposal facility prior to closure. This would include all systematic processes to coordinate, direct, and control operations.
3.	Michael Stephens		Acceptability of “in-situ” decommissioning (e.g., Which types of “legacy” facilities would potentially be acceptable? Why?)	<p>This is covered in REGDOC-2.11.2, <i>Decommissioning</i>.</p> <p>In addition to uranium mines and mills, potential legacy facilities for which in-situ may be considered a reasonable decommissioning would be research and demonstration facilities dating back to the birth of nuclear technologies in Canada for which decommissioning was not planned as part of the design.</p> <p>In selecting the appropriate decommissioning strategy, the licensee must consider several factors, such as potential environmental impacts, potential worker and public radiological doses.</p> <p>If the proposed in-situ decommissioning would result in a waste disposal facility, proponents must also demonstrate safety via a safety case and supporting safety assessment meeting the requirements of REGDOC 2.11.1, Volume III.</p>
4.	Ralliement contre la pollution radioactive		<p>Nowhere has the CNSC clearly defined what is "non-prescriptive" regulation. At first glance, the concept seems contradictory: Regulation are normally created to prescribe actions and to dictate obligations, aren't they?</p> <p>We understand that the CNSC's initiative aims to give the greatest possible freedom and the widest possible initiative to nuclear developers so that they can come up with original and safe solutions. In short, proposing objectives and imposing a performance obligation, rather than prescribing pre-defined cast in stone solutions.</p>	<p>The Cabinet Directive on Regulation encourages departments and agencies to make regulations that are “Outcome of performance based” as follows:</p> <p>“Departments and agencies should seek to design outcome, or performance-based, regulations when appropriate, with a view to minimizing the amount of regulatory burden imposed on businesses and Canadians.</p> <p>Outcome, or performance-based, regulations specify the desired result that a regulation intends to achieve, rather than a prescriptive description of compliance.</p>

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			<p>The entire third volume of REGDOC 2.11.1 aims to finely describe the "safety case" with which a promoter should eventually prove that his project is safe. Obviously, the CNSC has done a noteworthy job of detailing with such precision all the required steps in order to credibly demonstrate that a particular project will be safe.</p> <p>That doesn't make it a fascinating read. We would certainly have fallen asleep reading this endless series of guidelines if we had not had the invaluable and exceptional benefit of having already seen it in operation.</p>	<p>This type of regulation increases flexibility for regulated parties as well as departments and agencies, and requires the regulated communities to focus on achieving specific and measurable outcomes”</p> <p>The CNSC’s regulatory framework is designed such that greater clarity on regulatory requirements, as well as guidance on how to meet the requirements, is provided in regulatory documents. In applying for a licence or a licence renewal, proponents present details on how they intend to meet these requirements. The Commission considers the applicant’s proposal and, if it issues a licence, the licensee is legally bound to the requirements that are included, by the Commission, in the Licence and the Licence Conditions Handbook.</p> <p>Although the NSCA and its regulations are generally non-prescriptive, the radiation protection dose limits under the <i>Radiation Protection Regulations</i> are prescriptive and are in alignment with the core radiation protection principle of limitation. A licensee or applicant of any nuclear facility or activity must clearly demonstrate that doses are below their respective dose limits, and that the annual total effective dose received by a member of the public is below 1 mSv/year. This is a regulatory requirement and forms just one of the safety requirements that has to be demonstrated by a safety case.</p>
5.	Ralliement contre la pollution radioactive		<p>Thanks to our multiple Access to Information Act requests, we were able to follow the main technical documents that Canadian Nuclear Laboratories submitted to the CNSC to demonstrate the safety of their project for an aboveground radioactive landfill in Chalk River. We found that this portion of REGDOC has been applied long before its eventual adoption. We can also attest that this evaluation followed the steps provided for in volume 3 of REGDOC 2.11.1. And since the CNL published a revised description of their project for a surface radioactive dump at Chalk River, we must also</p>	<p>This draft REGDOC was developed based on REGDOC-2.11.1, <i>Waste Management, Volume III: Assessing the Long-Term Safety of Radioactive Waste Management Revision 1</i> (formerly G-320, <i>Assessing the Long term Safety of Radioactive Waste Management</i> ). REGDOC-2.11.1, Volume III, Revision 1 assists applicants for new licences and for licence renewals in assessing the long-term safety of radioactive waste management. This document describes approaches for assessing the potential long-term impact that radioactive waste storage and disposal methods may have on the environment and on the health and safety of people.</p>

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			<p>recognize that this procedure has a certain efficiency: the 2nd version of the NSDF project is clearly safer than the initial version, in 2017.</p> <p>On the other hand, we were also able to observe some weaknesses... and we find the same loopholes in REGDOC 2.11.1.</p>	<p>This document was also developed using best international practices and requirements from international safety standards, including IAEA SSG-23, <i>The Safety Case and Safety Assessment for the Disposal of Radioactive Waste</i>.</p> <p>It is CNSC's expectation that licensees comply with applicable regulatory documents and meet international best practices, including safety standards.</p>
6.	Ralliement contre la pollution radioactive		<p>First weakness of this 3rd volume of this REGDOC: it does not say anywhere that the safety case negotiation must be done in public. In this actual case, both the CNL and the CNSC have tried to prevent any access to their working papers and to the status reports of their negotiations, as if they had incriminating actions to hide. Although intermittent, our stubborn surveillance could effectively have prevented them from making too many indefensible compromises. Public access helps to restrict arbitrariness.</p> <p>Canada's Access to Information Act only applies to the federal government itself. It's almost unheard of that we have been able to successfully invoke it against a private consortium. The law certainly would have no control whatsoever over an electricity company or over the private developer of a small modular reactor, for example.</p> <p>This is why the REGDOC must require that all technical studies underlying the safety case be accessible to the public, as well as all the negotiation steps with the CNSC, when the promoter is not covered by Canada's Access to Information Act.</p>	<p>REGDOC-2.11.1, <i>Waste Management, Volume III: Safety Case for Disposal of Radioactive Waste, Version 2</i> outlines that the lifecycle approach to the development of the safety case enables ongoing engagement with the public and Indigenous groups and the incorporation of stakeholder feedback.</p> <p>The safety case provides a basis for decision making and is presented to the Commission for their review and consideration as part of the public Commission process.</p>
7.	Ralliement contre la		<p>Even if the promoter of a dumping ground can draw up his safety case himself, that does not justify the systematic elimination of any prescriptive</p>	<p>The <i>Radiation Protection Regulations</i> (RPR) stipulate a dose of 1mSv/yr limit for public protection. The RPR also defines the ALARA principle. However, the need</p>

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	pollution radioactive		<p>provision. In the new formula, the real standards are said to be found in section 8.1.1.1 of volume 3, entitled "Acceptance criteria used in the assessment". This section claims to set the criteria by which the safety results will be deemed acceptable.</p> <p>Unfortunately, the present REGDOC is far too weak and not prescriptive enough here. The first paragraph of section 8.1.1.1 even states that "the license holder should also define the precise criteria of the level of security to be achieved". Thereafter, the regulation "suggests" the rules that should apply. Or, it signals the existence of external "guides", which have no binding value.</p> <p>We completely disagree with such laxity. It is a question here of clearly defining what degree of security the promoter must achieve. <b>This is a task that clearly belongs to the CNSC. The precise criteria for the level of safety to be achieved must be specified in the REGDOC, explicitly.</b></p> <p>In the area of <u>radiological protection of persons</u>, for example, REGDOC first recalls the current rule according to which a radioactive dump site must never expose any member of the public to more than 1 millisievert of radiation per year. In order for the promoter to be sure of always respecting this standard, the REGDOC therefore <u>suggests</u> aiming for a lower target, in the simulations. It states that the International Commission on Radiological Protection (ICRP) and the IAEA document SSR-5 both recommend targeting a dose constraint of 0.3 mSv per year.</p> <p>Again, it is not enough to point out the existence of these international proposals, especially when they are non-binding. The CNSC must formally assess the validity of these IAEA proposals. And if they are valid, the <u>CNSC must then impose them in its regulations</u>. Otherwise, the CNSC is in serious breach of its obligations to protect the public.</p>	<p>for further conservatism is recognized and a dose constraint is often recommended to take into account the potential for exposure to the representative persons from multiple sources that may be present in the vicinity of the project in question, including potential future sources. External sources that can generate a cumulative impact are specific to each project, therefore the prescription of a dose constraint is not appropriate. However, using the ALARA principle, the acceptance criteria for the protection of the public proposed by the applicants and accepted by the CNSC are a fraction of the public dose limit.</p>

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8.	Ralliement contre la pollution radioactive		<p>On the next page of section 8.1.1.1 of volume 3, REGDOC addresses the risk of human intrusion. This is the main vulnerability of an above-ground dump whose integrity must be preserved for several centuries. Here again, the draft REGDOC settles for a simple reference to the IAEA's SSR-5 document which suggests target doses which should protect the public during a human intrusion into the landfill. Unfortunately, these IAEA proposals turned out to be dangerously inadequate when the CNL attempted to apply them to their Chalk River dump project. <b>REGDOC will therefore have to strengthen those suggested doses and impose them as mandatory requirement.</b></p> <p>In the IAEA proposal, the promoter is not bound to any improvement when he “expects” that the public will not be exposed to more than 1 milliSievert per year due to human intrusion. Also, according to the IAEA, the public dose has to exceed 20 mSv per year before the promoter is invited to exclude the most dangerous radionuclides in his waste acceptance criteria. This is 20 times the maximum radiotoxicity allowed in Canada! Once again, this language is MUCH TOO WEAK, especially if the CNSC settles for quoting these international suggestions, without even adopting and imposing them.</p> <p>Our criticism is not theoretical. Some scenarios from the Canadian Nuclear Laboratories have concluded that future public doses of more than 20 mSv/year could happen at the Chalk River landfill. The proponent tried to ignore its own conclusion and the CNSC had to intervene to lower the acceptance criteria for the problematic radionuclides. There is no reference to these incidents in the revised project description, of course.</p> <p>We also noted with concern that the results of these simulations can change by one or two orders of magnitude, by modifying very slightly the initial hypotheses: if a family built a house on the mound, in a few centuries, would it have a dug out basement? Where exactly would his drinking water well be? What diameter, the borehole? So many nuances that can completely change the conclusions! The CNSC cannot let any promoter adjust these</p>	<p>The CNSC expects that disposal facilities are developed in such a way that people and the environment are protected both now and in the future. In this regard, the prime consideration is the radiological hazard presented by radioactive waste. The ICRP developed the System of Radiological Protection that applies to all facilities and activities, and this system was adopted in the International Basic Safety Standards and the CNSC have included the criteria is this REGDOC.</p> <p>Regarding human intrusion, the criteria recommended by the IAEA, which comply with the ICRP recommendations, in fact stipulates that if the calculated dose is between 1 and 20 mSv that an optimization of the design of the installation should be made to reduce the probability of this intrusion:</p> <p style="padding-left: 40px;">“If annual doses in the range 1–20 mSv are indicated, then reasonable efforts are warranted at the stage of development of the facility to reduce the probability of intrusion or to limit its consequences by means of optimization of the facility’s design”.</p> <p>As a result of this comment, the third paragraph of the section titled Radiological Protection of Persons has been revised to remove the wording “For inadvertent human intrusion scenarios” to align with SSR-5 <i>Disposal of Radioactive Waste</i>.</p> <p>Concerning the evolution scenarios considered in the safety assessment, a normal evolution is defined, along with a series of disruptive scenarios. To define these scenarios, the proponent usually refer to an international FEP list (features, events and processes) published by the NEA and the IAEA. A normal evolution scenario must consider the events and processes that may occur with a significant probability during the useful period of the installation. Disruptive scenarios, including the intrusion scenario, correspond to low probability events and processes. The consequences of these scenarios can result in an impact beyond the dose constraint; however, given the low probability associated with these scenarios, the results should</p>

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			<p>criteria as he sees fit, especially when such "details" threaten the survival of his project!</p> <p>Finally, this 3rd volume of REGDOC 2.11.1 systematically transforms into suggestions (i.e.: "the promoter should do such a thing) provisions which have no meaning when they are not mandatory. Section 8.1.2.1 says, for example, that the applicant "must" include site characterization data in his security assessment.</p>	<p>be judged in terms of risk, probability, consequence, rather than focusing on the consequence in absolute terms.</p> <p>Safety assessment results that are generated by computer models are sensitive to the assumptions and the input data used in the models. REGDOC-2.11.1, Volume III addresses this concern by stipulating that when comparing the results of the assessment to acceptance criteria the licensee should include a discussion of the conservatism of the assumptions and input data as well as how all other safety requirements are met even if the results are acceptable. In other words, the assumptions on the containment capabilities of the disposal system, and on the receptors' lifestyle and habits have to be demonstrated to be sufficiently conservative to come to an overestimate of the impact.</p> <p>This REGDOC also stipulates that the licensee shall use conservative assumptions to bound any uncertainties and show that there remains a sufficient safety margin.</p> <p>The details of all modelling are reviewed by the CNSC and the proponent must submit sufficient information for the CNSC to verify the modelling results independently.</p> <p>Information about a site which is used to inform the safety case and supporting safety assessment include the regional, local, and site-specific characteristics. The level of detail of a site required to support a safety case evolves over-time. Early safety cases, which may be more conceptual, may rely more on information from the regional or local study area, as opposed to site-specific characteristics. For this reason, although it is mandatory that site characterization data be included and inform the safety</p>

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				assessment, the level of detail will also evolve over time and will be site and project specific.
9.	Ralliement contre la pollution radioactive		<p>5) If the CNSC continues to base public safety on the safety case submitted by each applicant,</p> <p>a. It must clearly impose the precise criteria which will define the level of security required of each radioactive waste landfill.</p> <p>b. It must carefully reassess the recommendations of external organizations (international or canadian) and justify their adoption before incorporating them into this REGDOC.</p> <p>c. It must avoid transforming into simple advice any expectation that is essential to obtaining credible conclusions in the safety case.</p> <p>d. It must require that all the elements of the safety case be accessible to the public, as well as all the stages of its evolution during the negotiations between the promoter and the CNSC.</p>	<p>The safety case and supporting safety assessment must show that the facility meets the regulatory dose limit, safety requirements and acceptance criteria, such as any proposed dose constraints. Every facility must also meet all other applicable requirements and regulations.</p> <p>It is CNSC's expectation that licensees comply with applicable regulatory documents and meet international best practices, including safety standards, which are applicable at the time of the application. Please note that quantitative criteria might change with future revisions of the standards.</p> <p>The "shall" and "should" statements in this REGDOC have been carefully considered, they complement CSA and align with IAEA requirements.</p> <p>The safety case provides a basis for decision making and is presented to the Commission for their review and consideration as part of the public Commission process.</p> <p>As outlined in REGDOC-2.11.1, Volume III, CNSC expects that the lifecycle approach to the development of the safety case enables ongoing engagement with the public and Indigenous groups and the incorporation of stakeholder feedback</p>