



2016 September 12

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

COMPLIANCE
Regulatory Affairs
145-CNNO-16-0025-L

Dear Mr. Torrie:

Canadian Nuclear Laboratories Comments on Draft Discussion Paper DIS-16-03 Radioactive Waste Management and Decommissioning

Canadian Nuclear Laboratories (CNL) has reviewed the Discussion Paper DIS-16-03 *Radioactive Waste Management and Decommissioning* and has consulted with industry partners, Ontario Power Generation, Bruce Power, and Nuclear Waste Management Organization to produce a set of consolidated comments, which are presented in Attachment A. Attachment B presents industry answers to questions for stakeholders.

In addition, specific request for clarification with applicability only to CNL is as follows:

Section 2.4 – issue:

The CRL Waste Management Areas are licensed as a single facility and a Class I nuclear facility, with both operating and non-operating facilities including areas that do not have an inventory of 10^{15} Bq. Is there a plan to change the licensing requirements of existing licences to align with the proposed licensing changes?

Suggested change:

It is recommended to consider discussion of the licensing requirements for existing non-operating waste management facilities, where there is no intention of future retrieval (in-situ disposal). It is also recommended to consider licensing requirements for abandonment or in-situ disposal of a specific existing waste management facility within a licence containing multiple waste management facilities.

If you require further information or have any questions regarding this submission, please contact me as indicated below.

Yours sincerely,

Canadian Nuclear Laboratories

Chalk River Laboratories
286 Plant Road
Chalk River, Ontario
Canada K0J 1J0
Telephone: 613-584-3311
Toll Free: 1-866-513-2325

Laboratoires Nucléaires Canadiens

Laboratoires de Chalk River
286, rue Plant
Chalk River (Ontario)
Canada K0J 1J0
Téléphone: 613-584-3311
Sans frais: 1-866-513-2325



UNRESTRICTED

Solly Karivelil, Manager
Regulatory Affairs
Phone: 613-584-3311, ext. 48021
Email: solly.karivelil@cnl.ca

SK/mj
Attachments (2)

c	J. LeClair (CNSC)	Consultations (CNSC)		
	S.K. Cotnam	K. Daniels	S. Faught	J.D. Garrick
	K. Kehler	H. Khartabil	W.S. Pilkington	J. Slade
	J. Stone	R. Swartz	J. West	
	>CR CNSC Site Office	>CR Licensing	>SRC	



Attachment A
Industry Comments on Draft Discussion Paper DIS-16-03 Radioactive Waste Management and Decommissioning

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
1.	General	<p>These Regulations would focus on the unique aspects of these facilities, which are neither surface facilities nor mines, and share the common focus on long-term safe management of the wastes. It is anticipated this would largely serve as a collection of existing requirements into one Regulation.</p> <p>One particular aspect to clarify would be the expectations around releasing a facility from CNSC licensing (i.e., licence to abandon), which is different for a long-term waste management facility than for surface facilities.</p>	<p>In general, Industry views the current Act and Regulations as adequate for most waste management activities and decommissioning, with the exception of the long-term aspects associated with some facilities. Industry does believe that creating a separate Regulation for long-term waste management facilities would be useful. These Regulations should be constructed as a complete standalone set at the same level as the current Class I, Class II and UMM Regulations to avoid overlap and confusion.</p>		
2.	General	<p>Several CNSC REGDOCs state they are for nuclear power plants, but no equivalent document exists for long-term waste management facilities. Either repository-specific documents could be created, or</p>	<p>Although the current Act and Regulations adequately cover most activities, additional clarification would be useful. This clarification and the relationship to other Standards should be provided in REGDOCs and not in Regulations. .</p>	Clarification	.



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
		these documents could be clarified in title and content on the extent to which they apply to repositories			
3.	General	There appear to be a number of inconsistencies in this discussion paper with other legislation, policies and Standards.	As a minimum, the following regulatory instruments should be cross-referenced: - <i>Canadian Environmental Protection Act</i> ; - <i>Canadian Environmental Assessment Act</i> ; - <i>Nuclear Fuel Waste Act</i> ; - <i>CSA N292.5, Guideline for the exemption or clearance from regulatory control of materials that contain or potentially contain, nuclear substances</i> ; etc. There is also no discussion of the provincial jurisdiction over Naturally Occurring Radioactive Materials (NORM, or TENORM), for example.	Clarification	
4.	Executive Summary, Section 1 and Section 2.1	The CNSC does not consider adopting Very Low Level Waste (VLLW) in this paper, nor have Naturally Occurring Radioactive Materials (NORM) and Technically Enhanced Naturally Occurring Radioactive Materials (TENORM) been discussed.	Adopt a Very Low Level Waste category as defined in CSA 292.0-14 A.5.3 It would be beneficial to include NORM and TENORM.	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
Section 2. OPPORTUNITIES FOR IMPROVEMENT					
2.1 Defining waste types (waste categories)					
5.	2.1	The definitions provided are overly restrictive.	The definitions as used in CSA N292.0-14 should be adopted. Waste acceptance criteria for disposal facilities are developed based on risk -informed safety assessments.	Major	Without looking at the waste lifecycle, the categories may limit the disposition of the pathways. These strict categorizations restrict the optimization of waste management strategies.
6.	2.1	The definition of “radioactive waste” in this paper is inconsistent with other documentation. CNSC DIS-16-03 defines “radioactive waste” as “ <i>materials within the CNSC’s mandate that contain licensable quantities of nuclear substances for which no future use or benefit is foreseen.</i> ” CNSC P-290, defines “radioactive waste” as “ <i>any material (liquid, gaseous or solid) that contains a radioactive ‘nuclear substance’ as defined in section 2 of the Nuclear Safety and Control Act and which the owner has declared to be waste.</i> ”	Industry recommends the definition of “radioactive waste” be clarified and consistent throughout all Regulations and REGDOCs and in accordance with CNSC’s Policy P-290, which recognizes the owner as being responsible for declaring material as waste.	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
		<p><i>In addition to containing nuclear substances, radioactive waste may also contain non-radioactive "hazardous substances", as defined in section 1 of the GNSCR."</i></p> <p>CSA Standard N292.0-14 defines "radioactive waste" as "a gas, liquid, sludge, or solid containing a nuclear substance in excess of the clearance or exemption criteria and without foreseeable use."</p>			
7.	2.1	<p>Second paragraph, 'To increase clarity and consistency, the CNSC is proposing to formally adopt the waste categories as defined in CSA N292.0-14, <i>General Principles for the Management of Radioactive Waste and Irradiated Fuel</i>, for use in its regulatory framework. CSA N292.0-14 reflects international guidance from the IAEA, including IAEA General Safety Guide GSG-1, <i>Classification of Radioactive Waste.</i>'</p>	<p>Industry supports this proposal.</p> <p>Currently, there is some confusion around what is a hazard. The <i>Class I Nuclear Facilities Regulations</i> exclude nuclear substances from the definition of a hazardous substance or hazardous waste. N292.0-14, however, refers to both nuclear and non-nuclear hazardous components. The CNSC could include a definition of hazardous waste and change the final sentence of the opening paragraph to read, 'Consequently, radioactive waste can be subdivided into categories based on its characteristics, including the level of risk.'</p>	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (<i>if applicable</i>)	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
8.	2.1.1	Clarity sought for the definitions of exemption, exclusion and clearance.	It is suggested that radioactive waste simply be defined as waste material containing nuclear substances at quantities exceeding exemption, exclusion or clearance levels as defined in CSA Standard N292.5-11, <i>Guideline for the Exemption or Clearance from Regulatory Control of Materials that Contain, or Potentially Contain, Nuclear Substances</i> . That Standard makes a distinction between clearance, exemption and exclusion as to when material containing radioactivity does not warrant to be under regulatory control (i.e., exemption), is not feasible to be placed under regulatory control (i.e., exclusion), or does not warrant to remain under regulatory control (i.e., unconditional or conditional clearance levels).	Clarification	
9.	2.1.1	Unshielded contact dose rate for the proposed LLW is < 2 mSv/h, which seems reasonable from an operational standpoint. However, shielding may be appropriate to minimize worker dose during handling.	Industry suggests adding a caveat for shielding with regard to dose rates.	Clarification	
10.	2.1.1	Potential for waste to move from one category to another is not addressed.	Industry suggests noting that waste may be handled as different categories dependent on the conditions at a given point in the lifecycle.	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
11.	2.1.1	The definition of HLW considers only waste from medical isotope production using nuclear fuel which may bring confusion for other types of medical isotopes produced by activation. This type of waste may not fall under HLW and current description may be interpreted as requiring treatment as HLW.	Include a statement that clarifies the fact that medical isotopes can be produced by methods other than using nuclear fuel.	Major	Could significantly alter current disposal strategy and result in an overly conservative disposal route. For example, not all wastes from medical radioisotopes production are HLW (based on thermal threshold).
12.	2.1.1	<p>Various licensees have developed their own site-specific or company-specific definitions for different waste categories. Aligning with these proposed ones may result in major administrative burdens, such as updating procedures, standards and other documents.</p> <p>At Whiteshell Laboratories, for instance, CNL has historically classified waste as Low-Level Waste based on dose rate (at 30 cm) and total estimated activity (rather than specific activity). As waste was characterized against this criterion; CNL does not have additional data from historical waste that would</p>	Industry suggests use of the CSA N292.0 definitions, which have some flexibility in boundaries (see Comment #5). Alternatively, if these CNSC definitions are adopted, there should be a provision to have these definitions apply to all future waste, but to incorporate a “grandfather” clause.	Major	<p>If there are requirements to report stored volumes based on these assumptions, it would require a substantial amount of work to look at legacy records to properly assess the volume of each waste category. Additionally, facility documentation would have to change and facilities themselves may have to be re-named.</p> <p>If these categories were changed there would also be a significant impact on safety analysis for these facilities. Waste would need to be re-classified to fit</p>



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
		allow continuing classifying it as LLW if the new definition applied. In addition, industry notes that the limits are not consistent with the definitions provided in CSA N292.0-14.			into these categories. These proposed definitions could require additional significant characterization of historic waste packages This would result in increased costs and nuclear industry worker dose
13.	2.1.1	Description of shielding is inaccurate: “shielding refers to a barrier (like a concrete wall or protective clothing) between contaminated wastes and workers”.	Shielding means blocking penetrating radiation such as gamma and neutrons, rather than the confinement/ containment of contamination as the sentence implies. Industry recommends the description be modified.	Clarification	
14.	2.1.1	The following statement could lead to an inaccurate interpretation of how LLW is handled: “Much of the waste in the LLW category is safely stored until the radioactivity has decayed to levels below which the CNSC has any concerns about”.	Industry recommends the intent of this statement be clarified to recognize the drivers for hazard reduction and waste disposal.	Clarification	
15.	2.1.1	P. 5, para 1. To bring Canada fully in line with international approaches, additional consideration would need to be given to the definitions of	Better define ‘storage’ versus ‘disposal.’	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
		'storage' versus 'disposal.' Last two sentences suggest that 300 years may be considered storage. This duration may be considered disposal elsewhere. This has the potential to affect public perceptions of the industry. Storage usually implies the ability to retrieve material.			
16.	2.1.1	Need to clarify 'owner' versus 'operator' for management of waste on-site.	Suggested change: licensee /operator is responsible for the waste they produce on site – not the owner.	Clarification	
2.1.2 Other types of waste					
17.	2.1.2	With the exception of mixed wastes, other types of waste are already covered in other Federal and Provincial Acts and Regulations. High level guidance could be provided for these areas, but licensees already have mature programs that meet legal requirements in this area.	The CNSC is strongly encouraged to avoid duplicating requirements in this area.	Major	Regulations and guidance around mixed waste should be considered. However, the CNSC should avoid any requirements with regard to hazardous and conventional waste as they are already sufficiently covered in other Federal and Provincial Acts and Regulations.
18.	2.1.2	The definition for hazardous waste states that it is "waste, other than a nuclear substance...that may pose a	Industry recommends the CNSC provide national guidance on hazardous and mixed waste and the application of the ALARA principle to this type of	Major	The current definition would allow/require a lot of material to be classified as "hazardous."



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
		<p>risk to the environment or the health and safety of persons.” These are defined in provincial Regulations; however, there is a lack of consistent national definition of hazardous waste.</p>	<p>waste while complying with other Regulations (PCB Regulation, Hazardous Waste Regulation under the Dangerous Goods Handling and Transportation Act).</p> <p>Suggestions include</p> <ul style="list-style-type: none"> - Specifying the thresholds for various types of hazardous waste or referencing an existing Standard (e.g., National Pollutant Registry Index (NPRI)). - Providing guidance on what constitutes a “representative sample” of decommissioning waste for the purposes of Toxicity Characteristic Leaching Procedure (TCLP) testing is needed. - Pointing to the respective provincial Regulations for hazardous waste. 		<p>There are often trace quantities of hazardous materials in waste. Having to deal with this type of waste as “hazardous” even though the risk it poses is extremely low would have major implications on waste management practices. The fact that certain wastes would have to be considered “Mixed Waste” would also create major issues.</p> <p>These definitions could result in significant costs and affect industry’s ability to develop options to “Reduce, Reuse, and Recycle.”</p>



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change (if applicable)	Major Comment/ Request for Clarification	Impact on Industry, if major comment
SECTION 2.2 MAKING 'REDUCE, REUSE, RECYCLE' A REQUIREMENT					
19.	2.2	Making "reduce, reuse, recycle" a requirement is problematic. CNSC Policy P-290 already includes this through the concept of waste minimization. Environment Canada already applies the principle of 'pollution prevention,' which is defined under the Canadian Environmental Protection Act as "... processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste..."	<p>Industry does not believe that "reduce, reuse, recycle" should be embedded in Regulations.</p> <p>There is always an "as practicable" argument that needs to be used with "reduce, reuse and recycle" which makes it very difficult to regulate. In reality, not all volume reduction technologies are practical or economical. Selection should remain at the discretion of the licensee where practicable</p> <p>The application of the principle of 'reduce, reuse, and recycle' could be encouraged through a REGDOC, which provides examples of how the three principles are to be achieved. Industry encourages the CNSC to consider the CSA Standard, which suggests users "shall consider" the 3Rs, which is a better approach.</p>	Major	Reduce, reuse, recycle is already embedded in legislation for conventional and hazardous waste. Extending this requirement to radioactive waste would put the licensees in a difficult position since there are no facilities in Canada capable of recycling radioactive waste. Previous attempts to ship radioactive waste outside of the country for recycling have been met with strong public opposition. Some stakeholders push for and believe that there is opportunity to "reuse" all types of radioactive waste materials. In reality, that is not the case. There are no known "reuse" options for items such as resins, incinerator ash, contaminated soils and even spent fuel to some extent. (Studies have been conducted



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
					on the feasibility to reuse spent CANDU fuel but there are no current viable commercial opportunities). By including in a Regulation and indicating that “reuse” is a requirement, there could be an expectation that industry to seek options for reuse that are not commercially viable or cost-effective, or may increase worker dose. Licensees should be able to explore all options to optimize overall waste management and decommissioning practices.



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
SECTION 2.3 ESTABLISHING RECORD-KEEPING REQUIREMENTS FOR WASTE OPERATIONS					
20.	2.3	Most licensees already retain records for 10 years and beyond. There are also requirements for institutional control measures in waste management facility design that would ensure that records are retained for an appropriate period.	The CNSC should make reference to current good practices and provisions.	Clarification	
SECTION 2.4 LICENSING OF WASTE MANAGEMENT AND DECOMMISSIONING OPERATIONS					
21.	2.4	General comment	Industry considers the creation of a separate Regulation for long-term waste management facilities to be useful. In particular, if the new Regulations were constructed as a complete standalone set at the same level as the current Class I Nuclear Facilities, Class II Nuclear Facilities, and Uranium Mines and Mills Regulations, there would be no need to cross-reference multiple Regulations. As an example, we note that in the CNSC PMD 13-P1.2 (23 July 2013) provided to the Joint Review Panel for OPG's Low & Intermediate Level Waste Deep Geologic Repository Project, the CNSC states that the regulatory requirements come from the General Nuclear Safety and Control Regulations and Class I Nuclear Facilities Regulations, while guidance comes from the	Major	The separate Regulation for long-term waste management facilities would focus on the unique aspects of these facilities, which are neither reactors nor mines, and share the common focus on long-term safe management of wastes. It is anticipated that this would largely serve as a collection of existing requirements into one Regulation. One particular aspect would be to clarify the intent to release a facility from CNSC licensing



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
			<p>Uranium Mines and Mills Regulations.</p> <p>Surface interim waste management facilities, e.g. OPG's Western Waste Management Facility could continue to be covered under existing Regulations, but deep geologic repositories and surface disposal sites could be covered under the new Regulation.</p>		<p>(e.g., Licence to Abandon), which is different for long-term waste management facilities than for surface facilities.</p> <p>Related to this, several CNSC REGDOCs state that they are for nuclear power plants, but no equivalent document exists for repositories. Either repository-specific documents could be created, or these documents could be clarified in title and content on the extent to which they apply to repositories.</p>
Section 2.5 WASTE MANAGEMENT PROGRAM REQUIREMENTS					
22.	2.5	The proposed activities may be missing waste characterization.	It is suggested that any restructuring should be focused around the stages of the waste lifecycle.	Clarification	
Section 2.6 REGULATING REMEDIATION ACTIVITIES					
23.	2.6	There is a concern that remediation may require a different licence instead of being allowed under an	No change is suggested, but better clarity is required. The current process is not clearly defined.	Major	Certain licensees, such as CNL, need confirmation that remediation activities will continue to be conducted under the Site Operating



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
		existing operating licence or an existing decommissioning licence.			Licence to avoid delays and additional regulatory burden. There should be no requirement for the issuance of a licence to perform remediation activities.
24.	2.6	As written, this paper suggests that oversight of lower risk remediation sites is not commensurate with the level of risk.	Requirements and resulting oversight should be adjusted to ensure they are commensurate with the level of risk. The risk associated with remediation is considerably reduced and does not warrant a separate licence. Also, the licensed design should have included the institutional controls necessary to ensure that the long-term care and maintenance of the site.	Clarification	
Section 2.7 RELEASE FROM LICENSING AFTER DECOMMISSIONING OR REMEDIATION					
25.	2.7	There is a need for an alternative process to the issuance of a licence to abandon for nuclear facilities when they reach the end of their lifecycle, but still require long term care and maintenance.	Any process to de-license should include clear criteria indicating that the licence is no longer required.	Major	Clarity will help improve the regulatory process by providing consistency in application and understanding.



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
26.	2.7	The word “revoke” does not seem suitable. It has negative connotations of a licence being withdrawn or rescinded because of negligence or non-compliance.	It is suggested the CNSC use “release.”	Clarification	
27.	2.7	Remediation is mentioned in G-219, albeit only briefly, such as in the appendices on uranium mining and milling. Licensees look mainly to CSA Standards for guidance in environmental remediation. The CNSC seems to rely on including some of those Standards in licences to ensure a level of rigor in environmental remediation planning.	It is not necessary to duplicate efforts for activities that are already covered under CSA Standards. If obvious gaps are identified in available Standards then guidance should be provided on those items within the REGDOC structure.	Clarification	



UNRESTRICTED

#	Document/ Excerpt of Section	Industry Issue	Suggested Change <i>(if applicable)</i>	Major Comment/ Request for Clarification	Impact on Industry, <i>if major comment</i>
28.	2.7	<p>An alternative process for a licensee to modify their licence (as opposed to applying for a “licence to abandon”) would be extremely beneficial. In the current context, with proposed in-situ decommissioning projects, an alternative process would be very welcome.</p> <p>In-situ disposal of existing non-operating waste management facilities is a current proposed decommissioning activity.</p>	<p>New approaches to decommissioning are being proposed and explored so the current “licence to abandon” approach is no longer as relevant. Alternative end-states that include a modification to the licence but still require long-term monitoring and/or access control should be made available. There is a need for a process for issuance of a licence to abandon for the in-situ disposal facility that will require long-term monitoring during the institutional control period. After the licence to abandon, there could be a new licensing phase as applicable such as a licence for long-term monitoring and maintenance.</p>	Major	<p>This will result in improved regulatory clarity and stakeholder understanding. The lack of definition is resulting in confusion among some members of the public. This change will help licensees better explain projects of this nature to their immediate communities and the public at large.</p>



**Attachment B
Responses to Questions for Stakeholders**

QUESTIONS FOR STAKEHOLDERS	RESPONSE
SECTION 2.1.1: DEFINING WASTE TYPES (WASTE CATEGORIES)	
<i>Do the definitions provided above align well with current usage within the Canadian nuclear sector?</i>	The definitions should remain consistent with existing standards and should be provided by reference only. CSA Standard N292.0-14 adequately covers waste categories and is referenced in existing CNSC licences. This link or clarifications could be strengthened by also referencing this standard in relevant REGDOCs.
<i>Should any waste categories be re-examined?</i>	The use of VLLW category should be considered. In the United Kingdom, a VLLW facility has been created to avoid waste going as LLW. This has been important in decommissioning of sites. In addition, conventional waste should be further categorized into recyclable, compostable and landfill waste.
<i>If these categories were adopted within the CNSC regulatory framework, how would licensees operationalize the proposed definitions? That is, how would they demonstrate/ensure that their waste management programs comply with the proposed definitions?</i>	Industry expects these would be addressed through the usual mechanisms of measurements and/or process knowledge as appropriate. It is not clear if firm numerical boundaries in the definitions would require more measurements of difficult-to-measure radionuclides, which may result in increased worker dose with no change in safety, depending on the waste management facility. Currently, the industry uses characterization and dose rates limits for sending LLW to waste facilities.
<i>What would be the impact on licensees or other stakeholders if the CNSC adopted these definitions for use within its regulatory framework; e.g. by referencing or including them in regulations or regulatory documents?</i>	The numeric limits proposed for the LLW, ILW and HLW as fixed boundaries do not recognize that the radioactivity levels are strongly linked to the disposal concept and its associated safety case. What is acceptable in one facility may not be acceptable in another. Conversely, a facility designed for one class of waste may be able to accept a portion of a higher class. In addition, it is noted that CSA N292.0-14, in defining the LLW, ILW and HLW, uses these numerical limits “for orientation purposes only,” and not as rigid limits. The standard recognizes the need for detailed characterization for each of the three classes of radioactive waste. It also recognizes that, for example, “a precise boundary between LLW and ILW



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
	<p><i>cannot be provided, as limits on the acceptable level of activity concentration will differ between individual radionuclides or groups of radionuclides."</i></p> <p>Industry recommends the definitions of the main classes of radioactive waste be kept consistent with CSA Standard N292.0-14.</p>
Section 2.1.2: OTHER TYPES OF WASTE	
<p><i>Should the CNSC revise or clarify the types of waste described above?</i></p>	<p>Industry believes the current definitions are adequate.</p>
<p><i>Are there other types of waste that the CNSC should describe or define?</i></p>	<p>Very-low Level Waste (VLLW) should be included. Outside of that, any other waste type would be already covered by other Federal and Provincial Acts/Regulations.</p>
Section 2.2: MAKING 'REDUCE, REUSE, RECYCLE' A REQUIREMENT	
<p><i>Should the CNSC reinforce the importance of "reduce, reuse, recycle" in regulations?</i></p>	<p>Industry recognizes the importance of the "reduce, reuse, and recycle" principle applied in general to waste management. However, CNSC P-290 captures it through the concept of "waste minimization" which seems more reasonable for all types of radioactive waste. Also, a proposed change, notably "recycle," could imply a CNSC policy decision regarding how to handle nuclear fuel waste.</p>
<p><i>The CNSC is of the view that licensees are already applying "reduce, reuse, recycle" in their waste management programs. If there are significant compliance or administrative costs associated with this proposed new regulatory requirement, please describe the nature of these costs.</i></p>	<p>This is a significant issue with major impact on the industry. Licensees practice "reduce, reuse, recycle" for conventional and hazardous waste. For radioactive waste, the main practice is volume reduction. The costs to licensees would be highly dependent upon the requirements. If reduction of radioactive waste is all that is required and volume reduction is deemed sufficient to meet the requirements, there will likely be very minimal costs associated with meeting a new requirement. However, if full recycling becomes a requirement the costs incurred will be in the millions of dollars.</p>
Section 2.3: ESTABLISHING RECORD-KEEPING REQUIREMENTS FOR WASTE OPERATIONS	
<p><i>Should the CNSC standardize the minimum record retention period for all waste management and storage</i></p>	<p>Industry would support standardization of record retention periods if it were risk-based and specific to the type of facility. For example, at a facility where all waste was removed and no residual contamination</p>



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
<p><i>facilities? What should be the minimum retention period after a licence expires?</i></p>	<p>remains, a one-year retention period would be more than sufficient. However, for a permanent waste disposal site (repositories), records will need to be available for a much longer period. Industry would benefit from knowing what the CNSC deems “appropriate information” to be retained and what level of inventory analysis would be required for the waste. The requirements for specific documents, the retention format, retrievability and eventual approval-to-destroy would need to be specifically addressed under the proposed regulations to ensure that compliance is met. The administrative burden should be proportionate to the need (essential records).</p>
<p><i>Are there other considerations (e.g. administrative costs) that the CNSC should take into account when setting record-keeping requirements for disposal facilities?</i></p>	<p>Specific aspects for long-term record-keeping (i.e., after repository closure) could include:</p> <ul style="list-style-type: none"> - key records to be preserved for long period of times to allow safety and policy reviews - communication media - transfer of responsibilities after repository closure - location of the key records. <p>International initiatives, such as the NEA Radioactive Waste Management Committee’s initiative on Preservation of Records, Knowledge and Memory (RK&M) across Generations, could be considered when developing any specific record-keeping requirements for repositories. The initiative focuses on the period of time after repositories closure. Recognizing that “there is no single best means of preservation over all timescales”, the initiative’s working areas include topics such as developing a systemic approach for the elements of a system to preserve RK&M, identifying the minimum set of information to preserve after repository closure, and other.</p> <p>The CNSC should consider whether the requirements are proportionate to the type of facility/potential harm to the public (e.g. a decommissioned manufacturing facility would be different from a waste disposal facility).</p> <p>The requirements should also allow for modern storage mediums (i.e. electronic storage) and for innovative new methods that may be developed in the future.</p>
<p>Section 2.4: LICENSING OF WASTE MANAGEMENT AND DECOMMISSIONING OPERATIONS</p>	



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
<p><i>Should the CNSC clarify its licence application requirements for different types of waste operations? What are your comments on the proposals above?</i></p>	<p>Given the different purposes of various facilities, it would be appropriate to clarify the licence application requirements for different waste operations. The proposals put forward by the CNSC appear reasonable. However:</p> <ol style="list-style-type: none"> 1. Although the proposed three categories are acceptable in concept, their titles are not very clear. A “waste management” facility could be one where waste is conditioned rather than disposed. 2. Possibly only the new class of facility needs to be identified since others already exist. 3. The industry does not favour the phrase “waste disposal facilities” as retrievability may be a factor for long periods of time. <p>The industry recommends that any new regulation focuses on long-term waste management facilities.</p>
<p><i>Waste management and storage facilities are currently subject to the Class I Nuclear Facilities Regulations when they have an inventory greater than 1×10^{15} Bq. Does this continue to provide an effective, safe and practical point to distinguish between a Class I facility and other waste operations?</i></p>	<p>This is a reasonable, effective, safe and practical delineation point and Industry supports the continued use of 1×10^{15} Bq.</p>
<p><i>The CNSC is of the view that classifying facilities as described above would improve clarity by codifying the application requirements now addressed by using the “any other information” clause. If there are any new compliance or administrative costs associated with the proposals above, please describe the nature of these costs.</i></p>	<p>Industry supports the proposal to clarify “any other information” for facilities based on risk-graded approach. We note that these items should be clarified in REGDOCs and not in Regulations. Costs would be dependent on specific requirements put into the Regulations. It would be difficult to quantify without knowing the exact differences from current practice.</p>
<p>Section 2.5: WASTE MANAGEMENT PROGRAM REQUIREMENTS</p>	
<p><i>In what areas does the CNSC need to clarify its requirements for waste management programs?</i></p>	<p>Industry supports the proposal to clarify requirements for waste management programs based on a risk-graded approach. Requirements for waste management programs are documented in CSA 292.0 -14, which the CNSC should adopt and reference in licences, rather than develop new REGDOCs or Regulations. Different licensees have structured their sites and resources in a way to ensure that waste is properly managed. By implementing new requirements, it may force selected licensees to change their</p>



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
	programs from something that was suited to their operations to some universal standard.
<i>Are there any specific comments on the proposed activities above?</i>	It is recommended the CNSC align with the CSA N292 series of standards to the extent possible.
<i>The CNSC is of the view that licensees are already implementing these requirements, although they have not yet been codified in the regulatory framework. If there are significant compliance or administrative costs associated with the requirements described, please describe the nature of these costs.</i>	Costs would be dependent on specific requirements put into the regulations. It would be difficult to quantify without knowing the exact differences from current practice. If the CNSC aligns with the CSA N292 series, then costs should be minimal.
Section 2.6: REGULATING REMEDIATION ACTIVITIES	
<i>Is there a need for the CNSC to define the concepts of remediation, legacy site, existing situation, and reference levels?</i>	Industry agrees that definitions for the concepts of remediation, legacy site, existing situation, and reference levels are required. The use of risk-based arguments should be encouraged. Most of these definitions already exist in the international literature. For clarity and consistency, existing definitions should be selected (e.g., IAEA safety glossary, CSA standards, etc.) and formally adopted for use in Canada. Other useful terms would include: end state; cleanup criteria; institutional control; land use; in-situ decommissioning; in-situ disposal. Having common definitions for all Canadian licensees will promote clarity of expectations and avoid potential confusion.
<i>Are there other definitions that may be useful to the consideration of the requirements for long-term management of remediated sites?</i>	Use of VLLW and clarity of free release for bulk monitoring would assist.
<i>Is there a need for an alternative process to the issuance of a licence to perform remediation for existing situations?</i>	The Commission could potentially invoke its powers under Sections 46 and 47 of the NSCA as an alternative to a licence. However, given that a public hearing is required under those sections, it would seem more appropriate to just follow the path of obtaining a licence.
<i>Are there any additional comments on the proposals above?</i>	For legacy sites, it is suggested that monitored natural attenuation of waste (or other) sites be considered as a viable remedial activity. Long-term management of such sites, where physical remediation is deemed



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
	<p>“not required” based on reference levels, can be a viable solution. The CNSC should consider cost and time implications associated with the licence application process if a “remediation” licence is issued.</p>
Section 2.7: RELEASE FROM LICENSING AFTER DECOMMISSIONING OR REMEDIATION	
<p><i>Is there a need for the CNSC to clarify the role of a licence to abandon in a nuclear facility’s lifecycle?</i></p>	<p>Industry believes that clarifying the role of a licence to abandon would be beneficial to the public.</p>
<p><i>Is “abandon” the appropriate term to use for a nuclear facility that has successfully completed a decommissioning or remediation process and no longer requires CNSC oversight?</i></p>	<p>No, the term is easily misunderstood. The public perception of the term “abandon” is unintentionally negative and paints an inaccurate picture of companies simply walking away from their obligations. We recognize that term is in the NSCA and suggest its use be revisited in future years. Industry notes that ‘disposal’ is also in the Act and may be an alternative. When a licence is terminated it can be defined in two sub-categories; for ‘unconditional use’ (no CNSC regulatory conditions) or, with ‘conditional use’ which has restrictions imposed by the CNSC.</p>
<p><i>Is there a need for an alternative process to the issuance of a licence to abandon for nuclear facilities when they reach the end of their lifecycle, but still require long term care and maintenance?</i></p>	<p>Industry proposes a licence other than ‘Licence to Abandon’ should be used for a facility which continues to contain significant radioactivity after completion of decommissioning. It is suggested that the facility have a ‘Long-term waste management facility Licence’ during site preparation, construction, while it is in operation, decommissioning, and/or monitoring. After the ‘Licence to Decommission,’ there should be a licence that would address the closure phase with radioactive material remaining on site. An option would be to name this as a ‘Licence to Dispose.’ This proposed name would maintain consistency with the current NSCA, which recognizes a nuclear facility for the disposal of a nuclear substance generated at another facility (in the NSCA definition of nuclear facility). It also gives the Commission power to establish licences, including for activities under Sec. 26(b) to “... dispose of a nuclear substance.” Such a licence, whatever it is called, would address long-term aspects such as:</p> <ul style="list-style-type: none"> - Institutional controls - (Eventual) release from CNSC oversight - Preservation of information - Monitoring and maintenance - Trust funds



UNRESTRICTED

QUESTIONS FOR STAKEHOLDERS	RESPONSE
	<p>- Liability</p> <p>It is recommended that the licence be applicable for an extended period during which CNSC regulatory oversight would be retained acting on behalf of the Canadian government. The CNSC licence would end when there is transfer of institutional control to another agency, or the remaining wastes drop below some level of radioactivity. The nature of this agency and the timing need not be defined at this time.</p>
<p><i>Is there a need for an alternative process to the issuance of a licence to abandon for nuclear facilities when they reach the end of their lifecycle, but still require long term care and maintenance?</i></p>	<p>The CNSC proposal in the discussion paper seems reasonable. Industry would suggest a process for nuclear facilities (i.e. non-long term disposal facilities) that would result in the decommissioning licence not being “revoked” but some type of documentation being issued to note that the site (property) is no longer subject to regulatory control under the NSCA.</p>
<p><i>Are there any additional comments on the proposals above?</i></p>	<p>Some guidance for environmental monitoring for licence revocation and/or post remediation (duration, quantity, clean-up criteria), would be helpful. This work would all be captured under current (or augmented) facility monitoring or would be defined in detail in the safety case.</p> <p>Clarity is important as to what rules may be implemented once the licence to abandon is issued in terms of long term institutional control. This may not be a CNSC responsibility, but options and process should be outlined. For nuclear facilities (i.e. non –long term waste management facilities), if the CNSC is looking to simplify the licensing process, perhaps the Licence to Abandon could be incorporated into the decommissioning licence, i.e. the decommissioning licence would be the last licence in the nuclear facility lifecycle. Therefore, the decommissioning licence would have to contain the application and site release requirements which would have been in the licence to abandon. Granted, these requirements may be hard to provide at the time of applying for the decommissioning licence. Incorporating the licence to abandon into the decommissioning licence would eliminate the need for a licence to abandon; thereby eliminating any confusion about its name or its purpose. From the public’s perspective, the end of the decommissioning process would be a logical time to release a facility from regulatory oversight.</p>