

May 31, 2021

Jim Delaney
Director, Uranium and Radioactive Waste Division
Electricity Resources Branch
Natural Resources Canada
Email: nrcan.radwastereview-examendechetsradioactifs.nrcan@canada.ca

Re: Canada's Radioactive Waste Policy Framework Modernization – Joint Response from Waste Owners/Producers

Dear Mr. Delaney,

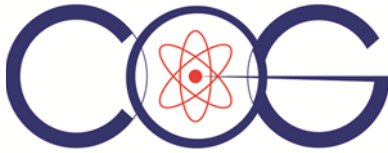
The major Canadian nuclear waste and by-products owners and producers (the organizations) have come together to prepare this joint written submission to Natural Resources Canada regarding *Modernizing Canada's Radioactive Waste Policy Framework*. Natural Resources Canada has launched a review of Canada's Policy Framework for Radioactive Waste with a view to modernizing it.

Four discussion papers have been published and comments requested on the following topics:

- Waste minimization
- Waste storage facilities
- Decommissioning
- Waste disposal

The organizations have come together under the coordination of the CANDU Owners Group to share knowledge and best practices, and enhance mutual understanding and alignment on major topics for waste management, with priority given to worker and public safety and protection of the environment. The organizations appreciate the opportunity to provide input to Natural Resources Canada as well as the opportunities to listen to the views expressed by Canadians and Indigenous communities throughout this engagement process.

The organizations equally look forward to further listening to Canadians and Indigenous communities and providing input to the Nuclear Waste Management Organization, which is leading the development of an **Integrated Radioactive Waste Management Strategy** (to be submitted to the Minister for his review and consideration), during their upcoming engagement with Canadians and Indigenous groups for **disposal of low and intermediate level waste** for which long-term proposals have not yet been developed.

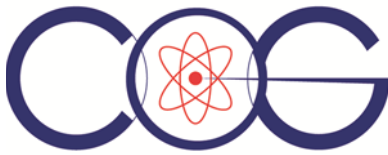


The organizations that have collaborated on this document include (listed alphabetically): Atomic Energy of Canada Limited, Bruce Power, Canadian Nuclear Laboratories, Hydro-Québec, New Brunswick Power, and Ontario Power Generation. With the exception of Bruce Power, all of these organizations are owners of nuclear waste and by-products. Canadian Nuclear Laboratories operates and manages sites owned by Atomic Energy of Canada Ltd under a Government-owned, Contractor-operated model. Canada's owners of nuclear waste and by-products are committed to implementing long-term management solutions for all nuclear waste streams, so that this challenge is not left to future generations. This commitment to manage nuclear waste and by-products is resolute, while providing flexibility to adapt to new technologies.

In addition to performing a detailed review of the discussion papers and related questions, we also had the opportunity to listen to different perspectives from other interested stakeholders and Indigenous communities as part of the Natural Resources Canada-led engagement events. We offer the following suggestions to Natural Resources Canada that may enhance Canadians' understanding of the context, purpose, and structure of the Radioactive Waste Policy:

General Comments

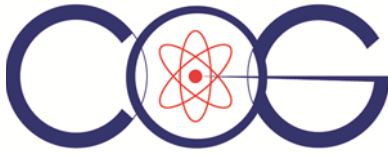
- We heard the following themes mentioned several times in the joint engagement sessions, and support their consideration in revisions to the policy:
 - o Indigenous consultation: We recognize the rights of Indigenous peoples and the commitment to consultation regarding activities that may impact these rights.
 - o Transparency: We recognize the importance of timely, open, accessible, and forthright information and dialogue with the public, stakeholders and Indigenous communities, and we are committed to transparency.
 - o Involvement of youth: given the long time frames involved with radioactive waste management, we recognize that the youth of today will be our future workforce, community leaders, activists, legislators, stakeholders and rights holders - carrying out important work in radioactive waste management, and influencing the regulatory, legislative and policy frameworks that govern that work.
 - o Education: we support promoting education in radioactive waste concepts as a means to furthering engagement with the public, stakeholders and Indigenous communities.



- We suggest that the Radioactive Waste Policy framework recognize that radioactive wastes and by-products are created in the pursuit of purposes that were (and are) beneficial to Canadian society and are the by-product of the peaceful application of nuclear technologies, the benefits of which include low-carbon electricity generation, research and development and medical diagnostic techniques and treatment. It is suggested that the discussions around waste disposal and decommissioning provide such context in the policy framework.
 - o Reflecting on this point, it might be appropriate to present the major radioactive waste producers as organizations that provide beneficial services to Canadians, which as a by-product of these services (e.g., electricity producers, national science and technology organization) have wastes to responsibly manage. This is a fairer representation than just referring to "waste owners" or "waste producers".
- While we see the roles and responsibilities as currently defined and exercised in the existing framework (policy and regulation) to be appropriate, we see an opportunity to provide more context as a means to provide clarity to Canadians. This would include a broader outline in the policy framework of the various responsibilities across the integrated framework of policy and regulation, including where they are further elaborated in companion policies or processes (e.g., Impact Assessment Act).
- We suggest that the Radioactive Waste Policy provide a context and an explanation of how the Natural Resources Canada Radioactive Waste Policy, the Integrated Radioactive Waste Disposal Strategy engagement being led by Nuclear Waste Management Organization, Canadian Nuclear Safety Commission regulatory requirements and inspection activities, and waste owners' operational responsibilities be integrated into a coherent Canadian approach to waste management.

Waste Minimization

- Waste minimization is a principle and practice that all nuclear facility operators currently employ. Waste minimization is fundamental to good nuclear facility operation, it is a regulatory requirement enforced by the Canadian Nuclear Safety Commission, and it is a good business practice. As nuclear waste and by-products owners and producers (which might not be the same in all cases) we fully support the principles presented in the Waste minimization policy discussion paper.
- We fully support the principles of waste minimization and the waste hierarchy (prevention, reuse, recycle, recover and disposal). We think it is important that the discussion of waste hierarchy be underpinned and aligned with both environmental and safety principles. The "As Low As Reasonably Achievable" principle per International Commission on Radiological Protection recognizes that economic and social factors need to be considered.

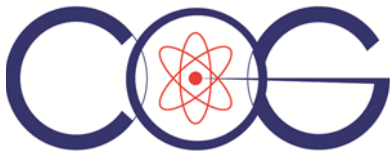


- It should be recognized that there are various considerations that need to be made for waste minimization and the minimization of some waste forms is not practical or aligned with ALARA. In addition, not all elements of the waste hierarchy can be practically applied to all types of radioactive waste. Additional challenges in this regard are often encountered with legacy radioactive wastes and facilities.
- With respect to the role of government, the regulator and waste owners in the minimization of radioactive waste, the waste owners/producers believe that the roles and responsibilities as currently defined and exercised are appropriate. Specifically:
 - o Government sets policy.
 - o The regulator establishes regulations, licensing framework and monitors compliance.
 - o Waste owners plan for and implement the principles of waste minimization, including the expectations set out by policy, regulations and the licensing framework.
- We also believe that waste minimization principles should be applied to the design of new nuclear facilities and reactors such as the emerging possibilities for use of Small Modular Reactors, so that design and construction materials minimize radioactive waste both in terms of quantity and activity.
- The very low-level waste category can be utilized more by industry as it is already recognized in Canadian Nuclear Safety Commission REGDOC 2.11.1.

Waste Storage Facilities

We support the principles presented in the Waste storage facilities policy discussion paper.

- The storage of radioactive waste in Canada is done safely as part of a highly-regulated environment. The Canadian Nuclear Safety Commission, Canada's independent nuclear regulator, sets high levels of safety standards for the design and routinely inspects facilities and operations for compliance. We believe that this framework is appropriate, effective and should continue going forward in order to provide the public confidence that activities are done safely and under the strict and independent oversight of the Canadian Nuclear Safety Commission.
- We believe the policy should avoid being too prescriptive in terms of timelines and technology.
 - o For example, the section in the discussion paper pertaining to storage of high level waste specifies... "*After six to 10 years in the bays, depending on site-specific needs and organizational administrative controls, and when the associated heat generation has diminished, the used nuclear fuel can be transferred to a dry storage facility.*" We would suggest the policy be at a higher level. The wording around high level radioactive waste management practices including the technology and timing needs to be commensurate with that prescribed in the safety case which is approved by the Canadian Nuclear



- Safety Commission. For example, it is likely that the management and storage of some SMR fuel will be significantly different than CANDU technology.
- o It is, however, noted that indefinite storage of radioactive waste and the generation of associated secondary wastes is undesirable, and the need for final disposal should be emphasized, such that waste is not left for future generations to manage.
 - Regarding the role of Government, the regulator, and waste owners with respect to radioactive waste storage – we wish to express our confidence in having a strong independent Canadian regulator which bases its decision making on technical and safety-based evaluations for waste storage. The regulator's role should not be diminished by policy.
 - We suggest that waste producers may need policy support for the practice of consolidating certain types of wastes, for example Intermediate Level Waste, at one or more locations to optimize storage facility utilization and minimize operation and security requirement costs. It needs to be recognized that the consolidation of waste at a centralized waste storage facility will require the transport of certain waste types, which the Canadian nuclear industry has demonstrated is routinely performed safely in adherence to existing transportation regulations.

Decommissioning:

- We suggest that the policy clearly recognize that decommissioning end-states will vary depending on multiple factors including the location, design, age, safety considerations, environmental considerations and stakeholder and Indigenous engagement. Flexibility is important as each site is unique.
- We suggest that the policy recognize that there is a need for flexibility in timing for the development and implementation of facility decommissioning strategies in that a combination of prompt and deferred decommissioning may be more appropriate.
- We suggest that the policy recognize that the availability of disposal facilities is critical in enabling efficient completion of decommissioning activities and should ideally be available before the acceleration of large-scale decommissioning projects such as nuclear power plants, particularly for the largest volumes of radioactive wastes produced which are typically Low Level Waste. It should be noted that initial phases of decommissioning projects sometimes have primary focus on advancing decommissioning of non-nuclear structures where there are less constraints on capacity to disposition resulting wastes that are not radioactive.
- The policy could be strengthened by recognizing that environmental remediation is often (but not always) part of a decommissioning program. Environmental remediation and decommissioning are frequently grouped together under the same framework because

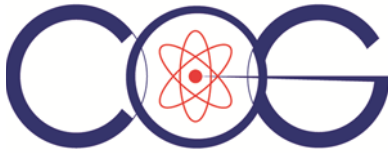


the same planning principles apply and it is often an activity to be completed as part of achieving the end-state.

- We suggest that the policy recognize that if a decommissioned site requires institutional controls because unrestricted release is not achieved, this is essentially the same or very similar to end-states in other industries where we identify that the brownfield site is suitable only for parkland or industrial re-use and is not suitable for residential or farmland.

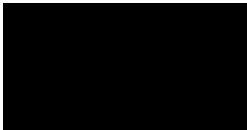
Waste Disposal:

- The policy would benefit from language that would encourage waste owners, if appropriate, to collaborate on disposal solutions. We believe that this type of policy support would aid a project proponent to be successful in siting and operating a future disposal facility that would also accept waste from others. While the current Radioactive Waste Policy framework does not prohibit or preclude waste owners collaborating on a permanent disposal project, experience indicates there would be significant social license considerations to do so.
- In general, there is a desire to keep the number of waste repositories to a minimum (but this does not necessarily mean striving for one for each category of radioactive waste). Such acknowledgement within the policy would provide leverage to waste owners in implementation of their consolidation strategies. In addition, it should be recognized that for many small waste producers it may be impractical and cost prohibitive for them to develop their own disposal solutions exclusive for their own radioactive wastes.
- Note that neither of the above two suggestions is recommending national waste disposal facilities as the answer. Collaboration by waste owners does not necessarily mean that all waste types would be or could be disposed of in one repository. The types and volumes of waste and by-products, their current storage locations and the required transportation distances to a potential repository all influence the optimal selection of options for disposal.
- We believe the terminology used within the policy needs to be selected carefully. Language such as "polluter pays", "cradle to grave" and "abandonment" do not necessarily convey the due diligence and environmentally sound management of radioactive waste by the industry. Furthermore, the policy should recognize that waste disposal technologies are supported by modern science and engineering and are flexible to accommodate any waste generated by any advanced technology (e.g., small modular reactors).



- We believe that practicing waste minimization and diversion is key to managing disposal facility capacity as an asset.

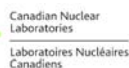
Sincerely,



Stephanie Smith,

President & CEO, CANDU Owners Group

On behalf of nuclear industry waste owners/producers that have contributed to, and endorsed this submission:



cc:

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Fred Dermakar, Atomic Energy of Canada Ltd.

Paul McClelland, Atomic Energy of Canada Ltd.

Patrice Desbiens, Hydro-Québec

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