

Submissions of Swim Drink Fish Canada/Lake Ontario Waterkeeper

Re: Public Consultation to Modernize Canada's
Radioactive Waste Management Policy

April 8, 2020

Submitted via email to NRCan's radioactive waste management review:
nrcan.radwastereview-examendechetsradioactifs.nrcan@canada.ca

About Swim Drink Fish

Swim Drink Fish Canada/Lake Ontario Waterkeeper (“Waterkeeper”) is a grassroots environmental organization that uses research, education, and legal tools to protect and restore the public’s right to swim, drink, and fish in Lake Ontario. As a non-political registered charity, Waterkeeper focuses on research and justice issues in the public interest. It is dedicated to protecting and celebrating the Lake Ontario watershed, including the wetlands, streams, rivers, and creeks that flow into the lake.

Waterkeeper also works with communities to facilitate the use of environmental laws to protect their rights to swim, drink, and fish. The organization participates in legal processes to help ensure that environmental decisions are made on the basis of sound and tested scientific evidence by independent decision-makers and in the public interest. Waterkeeper regularly intervenes in licensing proceedings and regulatory oversight report meetings before the Canadian Nuclear Safety Commission. The organization also regularly provides comments concerning CNSC procedures and policy.

Waterkeeper’s past work in related issues

Waterkeeper has been studying and reviewing impacts of legacy wastes in Port Hope since its founding. In 2001, the organization investigated environmental impacts of the old Port Granby low-level waste facility.¹ In the mid-2000s, Waterkeeper intervened in the environmental assessment (EA) for the Port Hope Area Initiative (PHAI).² Waterkeeper was also an intervenor in the CNSC licensing process for the PHAI in 2012³ and has engaged with the CNSC in subsequent regulatory oversight report meetings,⁴ making recommendations for improvements to waste management activities in Port Hope as well as waste management regulation more broadly.

¹ Lake Ontario Waterkeeper, A Study of Leaks at the Port Granby Low-Level Waste Management Facility, 2001.

² For its final comments, see: Lake Ontario Waterkeeper, Review of the Environmental Assessment and licence application for the Port Hope Long-Term Low-Level Radioactive Waste Management Project, 2009.

³ Lake Ontario Waterkeeper, Intervention before the CNSC concerning AECL’s application to remove the hold points and to amend the expiry date of Waste Nuclear Substance Licence for the Port Hope Long-Term Low-Level Radioactive Waste Management Project, 2012.

⁴ Lake Ontario Waterkeeper, Review of CNSC Staff’s Status Report on CNL Port Hope Area Initiative, 2016.

The current intervention opportunity

On November 16, 2020 Natural Resources Canada (NRCan) launched the current public consultation to modernize Canada's radioactive waste management policy. Since then, four discussion papers have been released via an interactive website created to guide public participation in the policy modernization process. NRCan has held a number of roundtables for members of the public, and is simultaneously inviting written comments. This summer it will produce a summary report discussing public input received. New radioactive waste management policy is scheduled to be finalized sometime after that.

Waterkeeper is submitting these comments with the hopes that NRCan will ensure its modernization of Canadian radioactive waste management policy is done with water quality in mind. It is imperative that the current modernization process for nuclear waste ensures better protection for the watershed and all those who rely on a healthy Lake Ontario for their drinking water and recreation spaces.

Recommendations for improvements to Canada's radioactive waste management policy

The following is a series of recommendations for improving Canada's radioactive waste management policy. Recommendations have been grouped according to discussion paper subjects where possible.

Issue 1: Guiding principles for modernized Canadian radioactive waste management policy must be more consistent with Canadian Environmental law

General Recommendation: Canada's modernized policy should ensure its guiding principles are consistent with Canadian environmental law, including pollution prevention, precautionary approaches, and attention to cumulative environmental impacts of radioactive waste. Its guiding principles should also recognize the public's right to know about the health of their local waterways and ways in which nuclear waste may impact these waters.

Discussion

Currently, the only environmental law principle integrated into radioactive waste management policy is the polluter pays principle. Further, the principle has been used in practice to support considerable industry influence over radioactive waste management, to the exclusion of

government and the public. Revised policy must include other core environmental law principles, and ensure that implementation of the polluter pays principle is not used to further industry self-regulation.

Recommendation 1: guiding principles for modernized radioactive waste management policy should include reference to: the precautionary approach, pollution prevention principle, and attention to cumulative impacts, in addition to the polluter pays principle.

The precautionary approach assures that a lack of scientific certainty concerning the environmental impacts of potential pollutants will not be considered evidence of their safety. In the context of radioactive waste, a precautionary approach would require stricter and more conservative environmental release limits.

The pollution prevention approach requires industry and government to stop producing pollutants, rather than solely relying on the dilution of pollutants into the environment. In the context of radioactive waste, this principle requires the government to develop accompanying policy to minimize the creation of further radioactive wastes.

Attention to cumulative impacts refers to the need to examine multiple stressors to the environment in relation to one another. In the context of radioactive waste management, attention to cumulative impacts would require the examination of the environmental impacts of radioactive waste facilities in relation to other nuclear and industrial facilities. It would also require an understanding of how radioactive waste management practices could interact with relatively healthy or fragile ecosystems.

The polluter pays principle requires polluters to take financial responsibility for the environmental harm they create. In the context of current radioactive waste management, however, this principle has been applied in a way that permits industry to conduct research and propose its own solutions to address legacy and future wastes. The polluter pays principle in future radioactive waste management policy should still require waste owners to fund their own research and waste management facilities, however, government agencies must ultimately have the authority to set and enforce more prescriptive environmental performance standards.

Another important principle that has been included in numerous pieces of Canadian environmental legislation as well as international declarations and conventions, is the public right to participate in decision-making processes that could impact the environment. This right to

participate is given life by a corresponding right public right to sufficient information to properly inform public participation.⁵

The right to access environmental information is also consistent with a broader public ‘right to know’ about the health of one’s environment and environmental stressors. Members of the public have a right to know about the quality of their environment. In the radioactive waste context, this should be understood as a right to know where nuclear contaminated sites are located, how they are being remediated, how remediation facilities are operated, and the technical and scientific basis for remediation and waste management processes. It should also include public access to all disaggregated environmental monitoring data, which will be discussed more below.

Recommendation 2: guiding principles for modernized radioactive waste management policy should include reference to the public’s right to know about radioactive waste management and how it impacts their local waterways.

Issue 2: Policy concerning waste storage and disposal should ensure public access to environmental data

General Recommendation: Canada’s modernized policy should require industry and regulators to conduct comprehensive environmental monitoring of all contaminant pathways from waste areas and facilities and make the disaggregated environmental monitoring data available to the public.

Discussion

While several environmental release standards and guidelines apply to radioactive waste facilities and activities, waste owners do not routinely monitor all known and potential contaminant pathways from their waste areas and facilities. Industry often relies on contaminant modelling to the exclusion of frequent, sustained, and comprehensive monitoring. While modelling may be helpful to conceptualize facilities, or predict future conditions at a facility that has yet to be built, it falls far short of actual monitoring to correctly characterize and know how waste areas and facilities are actually interacting with the dynamic ecosystems in which they are situated. Relying on modelling to the exclusion of monitoring denies industry, regulators, and the public from knowing and understanding the environmental impacts of radioactive waste. As

⁵ Note: the Environmental Law Centre has developed an accessible discussion of many of these principles, see: “Core Environmental Principles for Environmental Laws, Policies, and Legal Processes”, 2012, online: https://elc.ab.ca/Content_Files/Files/CoreEnvPrinciples.pdf.

such, environmental monitoring must be required for all radioactive waste management activities and facilities.

Recommendation 3: modernized radioactive waste management policy should require environmental monitoring whenever possible. When modelling is done, environmental monitoring should be conducted subsequently to continually verify the accuracy of models and real site conditions.

Recommendation 4: modernized radioactive waste management policy should ensure public access to disaggregated environmental data in real-time and in machine-readable formats.

Stormwater and groundwater can constitute contaminant pathways from nuclear waste areas and facilities, but are often overlooked in practice by both industry and regulators.⁶ Modernized radioactive waste management policies should ensure that stormwater and groundwater environmental monitoring and management is given the same priority as effluent emissions.

Recommendation 5: modernized radioactive waste management policy should ensure stormwater and groundwater contaminant pathways are managed and monitored with the same priority as facilities' permitted effluent.

Issue 3: Policy concerning waste disposal should better distinguish between industry and regulators' roles concerning waste acceptance criteria and waste characterization

General Recommendation: Canada's modernized policy should be more prescriptive concerning waste classification and waste acceptance criteria, and not leave these to industry to determine. Regulators should also develop more science-based thresholds for levels of radioactive waste and dispense with any graded approach to the applicability of its regulations.

Discussion

The wastes associated with nuclear facilities and processes fall into roughly four categories: 1) high-level radioactive waste (HLW); 2) intermediate-level radioactive waste (ILW); 3) low-level radioactive waste (LLW); and 4) waste that is not considered to be radioactive. However, the

⁶ For example, see: Submissions of Swim Drink Fish Canada/Lake Ontario Waterkeeper, Re: Commission Meeting to consider CNSC Staff Regulatory Oversight Report for Uranium and Nuclear Substance Processing Facilities, November 16, 2020; and Submissions of Swim Drink Fish Canada/Lake Ontario Waterkeeper, Re: Commission Meeting to consider CNSC Staff Regulatory Oversight Report for Nuclear GEnerating Facilities, November 16, 2020

only specific threshold values for contaminants in existing regulations apply to the fourth type of waste above: that which isn't considered to be radioactive.

Specific values for clearance levels and exemption levels are set out in the *Nuclear Substances and Radiation Devices Regulations*.⁷ However, distinctions between LLW, ILW and HLW lack the same clarity. The CNSC's regulatory documents, define HLW as that which "typically" displays levels of radioactive activity at between 10^4 and 10^6 TBq/m³, and no threshold values at all are provided for LLW or ILW at all. LLW is described as that which "generally has limited amounts of long-lived activity" and ILW is referred to as "generally longer-lived" and "generally require[ing] more containment than LLW".⁸

Recommendation 6: that modernized radioactive waste policy specify exact and science-based thresholds and distinctions between HLW, ILW and LLW.

However, the process by which these limits are set should be a publicly-accessible. This should include funding for members of the public and public interest organizations to retain legal and technical experts, so that they can help to ensure the adequacy of any new limits.

Recommendation 7: that NRCan establish a publicly accessible process to test and help determine scientific and technical bases for distinctions between radioactive waste levels.

The CNSC's regulatory documents also specify that nuclear waste owners are responsible for characterizing their waste and developing their own waste acceptance criteria.⁹ While guidance documents contain broad areas and types of information that should be included in these characterizations and criteria, there is a significant lack of specific substantive requirements.

Recommendation 8: modernized radioactive waste management policy should be more prescriptive and not leave waste owners to determine their own waste characterization and acceptance criteria.

Finally, current CNSC regulatory documents recommend a "graded response" to the application of its own enforcement of requirements to radioactive waste facilities. This approach permits its own regulatory documents to be applied to "varying degrees", depending on the "safety significance" of a given project or facility.¹⁰ However, this is inconsistent with a precautionary approach, and the unequal application of regulations is a troubling practice. All projects should

⁷ Clearance and exemption levels specify the threshold below which waste products are deemed not to require special measures. *Nuclear Substances and Radiation Devices Regulations*, Schedules 1 and 2.

⁸ REGDOC 2.11.1, Vol. 1 *Waste Management, Volume I: Management of Radioactive Waste*, s 6.1.

⁹ *Ibid* ss 7.1 and 7.2.

¹⁰ REGDOC 2.11.1, Vol. 3 *Waste Management, Volume III: Safety Case for Long-Term Radioactive Waste Management, Version 2*.

ultimately be held to the same standards, and regulations should apply equally to all facilities and activities.

Recommendation 9: that modernized radioactive waste management policy dispense with any graded approach to regulatory applicability and rather ensure all projects' safety cases meet the same rigorous standards.

Issue 4: The need for greater interjurisdictional coordination concerning radioactive waste oversight and regulation

General Recommendation: Canada's modernized policy should include more formalized cooperation agreements between the multiple government agencies and jurisdictions responsible for regulating environmental aspects of radioactive waste. Further, when multiple jurisdictions have release limits for certain contaminants, the stricter limit should prevail.

Discussion

a) Federal inter-agency overlap

While radioactive waste management falls primarily under federal jurisdiction (via the *Nuclear Safety and Control Act* (NSCA) and NFWA), there are also aspects that are governed by other pieces of federal environmental legislation:

- *The Impact Assessment Act (IAA);*
- *The Canadian Environmental Protection Act (CEPA);*
- *The Fisheries Act;*
- *Species at Risk Act (SARA); and*
- *Convention on Migratory Birds.*

This is in part because the majority of existing radioactive waste (e.g. LLW and ILW) are comprised of a wide variety of materials that may be chemically toxic or hazardous, in addition to the radioactivity these substances have been exposed to. For this waste, the *NSCA* primarily addresses the substances' radioactivity, while other legislation (e.g. *CEPA* and the *Fisheries Act*) governs the same substances' non-radiological contaminants and their impacts to ecosystems.

CNSC regulatory documents require interjurisdictional management of nuclear waste via the "consultation and cooperation" of multiple departments and jurisdictions.¹¹ The CNSC has also entered into memoranda of understanding (MOUs) with the federal departments of Fisheries

¹¹ REGDOC 2.11 (*Framework for Radioactive Waste Management and Decommissioning in Canada*)

and Oceans¹² and Environmental and Climate Change¹³ which delineate responsibilities for ensuring compliance with their respective legislation. However, in practice historically, other federal agencies have deferred to the CNSC for regulation.¹⁴

Recommendation 10: that memoranda between the CNSC and other agencies (including the DFO and ECCC) delineate specific shared responsibilities relating to environmental aspects of radioactive waste management.

b) Federal-provincial overlap

Non-radiological contaminants are also governed by provincial legislation, regulations, and guidelines. Canadian constitutional law permits provincial laws of general application apply to issues also regulated by the federal government to the extent that they do not conflict with federal regulation.¹⁵

In Ontario, the Ontario Ministry of Environment, Conservation and Parks grants Environmental Compliance Approvals (ECAs) to industrial facilities pursuant to the *Ontario Clean Water Act* and *Environmental Protection Act*. This provincial permitting process ensures compliance with provincial environmental laws that limit allowable emissions. However, there have been several cases in which ECAs have not been granted for nuclear waste facilities in deference to federal licenses, despite the fact that the relevant spheres of authority do not entirely overlap.¹⁶ Modernized radioactive waste management policy should ensure compliance with provincial as well as federal environmental laws.

This issue is particularly significant because provincial guidelines for contaminants associated with nuclear facilities are more protective of the environment than their federal equivalents. For example, the Provincial Water Quality Objectives limit discharges of uranium to water to 0.005 mg/L, while the federal limit allows three times as much uranium to be released into local waters (the Canadian Council of Ministers of the Environment (CCME) limit is 0.015 mg/L).¹⁷ CNSC

¹² Memorandum of Understanding between Fisheries and Oceans Canada and Canadian Nuclear Safety Commission for Cooperation and Administration of the *Fisheries Act* and the *Species at Risk Act* Related to Regulating Nuclear Materials and Energy Developments, December 16, 2013.

¹³ Memorandum of Understanding between Canadian Nuclear Safety Commission and Environment Canada, June 2012.

¹⁴ See for example: Joint Review Panel Hearing, Darlington New Nuclear Power Plant: Environmental Assessment and Licence to Prepare a Site, Final Submissions of Lake Ontario Waterkeeper, March 21, 2011; and Submissions of Lake Ontario Waterkeeper to the Canadian Nuclear Safety Commission, Re: Relicensing hearing for the Darlington Nuclear Generating Station, September 28, 2015.

¹⁵ *114957 Canada Ltée (Spraytech, Société d'arrosage) v Hudson (Town)*, 2001 SCC 40.

¹⁶ Waterkeeper submissions, *supra* note 4.

¹⁷ Submissions for Swim Drink Fish Canada/Lake Ontario Waterkeeper, Re: Relicensing hearing before the Canadian Nuclear Safety Commission for BWXT-Nuclear Energy Canada, January 27, 2020.

regulatory documents prioritize CCME guidelines over provincial ones, and only allow for provincial guidelines to be used in cases where no federal limits exist for a particular substance.¹⁸ However, the application of the stricter of multiple thresholds would be more consistent with the precautionary and pollution prevention approaches: when more than one standard may apply to a particular release, the stricter limit should prevail.

Recommendation 11: that modernized radioactive waste management policy explicitly confirm that when multiple regulatory standards apply, the stricter of available standards should prevail.

Finally, no nuclear host municipalities or municipal waste management authorities in the Lake Ontario watershed appear to have entered into formalized MOUs or Administrative Agreements with the CNSC. Rather, these municipalities' sewer bylaws tend to defer to CNSC regulation of nuclear energy-related contaminants that may be emitted into wastewater systems and local waterways via sanitary sewers and combined sewers. As a result, the public is often unable to access information concerning the potential for wastewater treatment plants to monitor and treat any radioactive contamination it may receive, before releasing it into the lake.

Recommendation 12: that modernized radioactive waste management policy explicitly require federal cooperation with municipalities concerning emissions from radioactive waste facilities into municipal sewer systems and wastewater treatment plants.

Conclusion

These submissions have provided a series of recommendations and discussions to help ensure that changes to current Canadian radioactive waste management policy are made with the health of Lake Ontario in mind. They have focused on central principles of environmental law and the need for greater public access to information. They have also addressed the need for more conservative and precautionary contaminant release limits and advocated for greater interjurisdictional cooperation and collaboration to address the varied environmental impacts of radioactive waste management.

Summary of all recommendations

¹⁸ REGDOC 2.11.1, Vol. 3, *Waste Management, Volume III: Safety Case for the Disposal of Radioactive Waste*, p 17.

Recommendation 1: guiding principles for modernized radioactive waste management policy should include reference to: the precautionary approach, pollution prevention principle, and attention to cumulative impacts, in addition to the polluter pays principle.

Recommendation 2: guiding principles for modernized radioactive waste management policy should include reference to the public's right to know about radioactive waste management and how it impacts their local waterways.

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Recommendation 6: that modernized radioactive waste policy specify exact and science-based thresholds and distinctions between HLW, ILW and LLW.

Recommendation 7: that NRCan establish a publicly accessible process to test and help determine scientific and technical bases for distinctions between radioactive waste levels.

Recommendation 8: modernized radioactive waste management policy should be more prescriptive and not leave waste owners to determine their own waste characterization and acceptance criteria.

Recommendation 9: that modernized radioactive waste management policy dispense with any graded approach to regulatory applicability and rather ensure all projects' safety cases meet the same rigorous standards.

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Recommendation 11: that modernized radioactive waste management policy explicitly confirm that when multiple regulatory standards apply, the stricter of available standards should prevail.

Recommendation 12: that modernized radioactive waste management policy explicitly require federal cooperation with municipalities concerning emissions from radioactive waste facilities into municipal sewer systems and wastewater treatment plants.