

*Comments on Draft Environmental Impact Statement:  
In Situ Decommissioning of the WR-1 Reactor  
(CEA Registry Number 80124)*

To: Canadian Nuclear Safety Commission (CNSC)  
From: Canadian Coalition for Nuclear Responsibility (CCNR)  
Date: December 19, 2018

Dear Ms. Cianci

The Canadian Coalition for Nuclear Responsibility (CCNR) intends to submit supplementary comments by January 15 2018 on the proposed in-situ decommissioning of the WR-1 reactor, elaborating on the following points:

1. The proposed in-situ decommissioning of the WR-1 reactor is radically different from previous plans to remove all radioactive materials from the site and return the site to “green field” status. The proposal is now in effect a proposal to create a permanent repository for radioactive materials created during the fission process, including fission products (such as strontium-90, iodine-129 and cesium-137), transuranic actinides (such as neptunium, plutonium and americium), and activation products (such as cobalt-60, iron-59 and nickel-63). Since the government of Canada has not articulated a federal policy on the long-term management of post-fission radioactive waste materials other than irradiated nuclear fuel, CCNR urges that this EA be suspended until the Government has elaborated such a policy.

2. Since the secure containment of radioactive waste materials, preventing them from escaping into the environment for millennia, is of great concern to this and to future generations of Canadians including First Nations, and since failure of containment has the potential to contaminate water and food supplies on or adjacent to indigenous lands, and to pose dangers to this and future generations of Canadians, there is a need for broad consultation with Canadians, including First Nations, on the principles that should be applied vis-a-vis the long-term management of such post-fission radioactive wastes (other than irradiated nuclear fuel). For example, a Joint

Declaration of the Anishinabek Nation and the Iroquois Caucus in Ontario, released in May 2017, lists five principles that are not embodied in the draft EIS for the in-situ decommissioning of the WR-1 reactor. See [http://ccnr.org/Joint\\_Declaration\\_2017.pdf](http://ccnr.org/Joint_Declaration_2017.pdf) .

3. CNL is owned by a consortium of private profit-oriented corporations that are operating under a time-limited contract to AECL, a crown agency. AECL channels hundreds of millions of dollars of Canadian taxpayers' money into the coffers of CNL to allow the consortium to prepare and carry out its proposals, including the in-situ decommissioning of the WR-1 reactor, the in-situ decommissioning of the NPD reactor, and the Near Surface Disposal Facility at Chalk River. CCNR believes that the decommissioning of the WR-1 reactor should be designated as an AECL proposal and not a CNL proposal, even if CNL carries out the work under the direction of AECL.

4. CCNR objects to the unseemly haste in dealing with three draft EIS reports in overlapping time periods dealing with three unprecedented proposals for the long-term management of post-fission radioactive wastes (other than irradiated nuclear fuel), namely the WR-1 in-situ decommissioning proposal, the NPD in-situ decommissioning proposal, and the NSDF at Chalk River. These problems of radioactive waste management have existed for many decades, and the proposals themselves have implications for hundreds of thousands of years, yet there is a mad rush to deal with all of these proposals simultaneously in a matter of months. This undue haste puts an undue strain on competent NGO's wishing to intervene in a coherent and constructive manner on all three proposals. Each of these proposals is technically complex, involving dozens if not hundreds of significantly radiotoxic elements, each having their own unique biochemical pathways through the environment and through the human body. Instead of ensuring that the Canadian public has ample opportunity to become educated on the issues and the choices at hand so that a satisfactory societal consensus can be developed, the EA process seems to be hijacked by the commercial interests of the private proponent CNL, namely to quickly clear the decks of nuisance materials in order to embark upon an ambitious plan to host the development and participate in the deployment of an entire new generation of "Small Modular Reactors" in order to hasten the profitable business of marketing these new

reactors worldwide. CCNR believes that it is a disservice to Canadians, whose taxes are funding these very expensive radioactive waste management schemes, for federal authorities such as CNSC and CEAA to collude with the industry to foreshorten the time allotted for sober deliberation.

5. Some of the radioactive materials in the WR-1 core and radioactive structural materials are very long-lived. Nickel-59 has a half-life of 16 thousand years. Plutonium-239 has a half-life of 24 thousand years, but it will take almost a quarter of a million years for 99.9% of the Pu-239 atoms to disintegrate. And when those plutonium atoms do disintegrate, they do not disappear, but are transmuted into new radioactive atoms having a half-life of 700 million years. So the danger of these radioactive materials is measured not just in hundreds of thousands of years, but in millions of years. It is simply folly to abandon such materials in an underground grouted mausoleum that was never designed to outlast the Egyptian pyramids by hundreds or thousands of millennia. The EIS should provide a detailed and realistic description of the expected breakdown of the WR-1 subterranean structures over the centuries and millennia to come.

6. Nuclear reactors are dangerous to the community only if the radioactive waste materials created inside the reactor are released into the environment. Such a radioactive release occurs to the greatest degree when the core of a reactor melts down and the containment is breached. To prevent such catastrophic releases the CNSC requires that large sums of money be invested by licensees in sophisticated and expensive safety systems including emergency core cooling systems, redundant fast shutdown systems, and elaborate containment technologies, including a separate containment building and/or a filtered venting system. Such catastrophic releases are not a realistic concern with the WR-1 entombment project, but the same radioactive materials are still present in smaller amounts, and chronic leakage over a period of centuries can cause widespread contamination and subsequent health effects. The CNSC frequently asserts, "We will never compromise safety." That is the mark of a dedicated regulator. In the case of operating nuclear reactor quick and cheap "solutions" are not tolerated by the CNSC if those approaches represent a degradation of containment aspirations. The Canadian Coalition for Nuclear Responsibility (CCNR) expects that CNSC must adopt

a similarly uncompromising attitude toward the long-term management of radioactive wastes produced by nuclear fission technology. To abandon these wastes beside major bodies of water is not, in our view, a responsible approach to radioactive waste management.

7. CCNR is aware that some of the corporations that are members of the coalition owning CNL have been accused of fraudulent practices, and that some of the very difficult radioactive waste management schemes that they have been involved in have not yielded satisfactory results from the point of view of the long-term health and safety of persons and the environment. CCNR has observed that CNL is inclined to misrepresent the acceptability of the waste management approaches that it is advocating here in Canada, as these approaches are not at all the “best practice” models that are claimed by CNL. For example, the only examples of in-situ decommissioning of small nuclear reactors that CCNR is aware of are located on military sites such as the Hanford Reservation in Washington DC, the Savannah River Site in South Carolina, and the Idaho National Laboratory, all of them highly secure sites that are not freely accessible to the general public. all maintained under the jurisdiction of the US Department of Energy. This is a far cry from the WR-1 site at Pinawa which is a civilian research facility that has been totally closed down for many years, and that will become completely deserted in the foreseeable future. The EIS should provide a detailed description of all non-military examples of in-situ decommissioning of nuclear reactors.

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