RE: Nuclear Wastes and Natural Rights

To the Attention of

The Public Record and

Ms. Lucia Abellan,
Environmental Assessment Officer
Canadian Nuclear Safety Commission

Dear Ms. Abellan,

Please add this letter to the Environmental Impact Statement of the Rolphton NPD Closure Project. **The disposal of radioactive substances in a manner that anticipates their eventual partial release into the human environment imposes a health burden upon future generations that cannot be justified by any moral or legal rationale.**

Microphysics: In nature, energy is regularly cast off from unstable atomic structures. When these particles or energies leave their previous orbits or shells and radiate outward, they are capable of imparting an electrical charge to other matter they encounter, and so are called "ionizing radiation." Such radiation can be, and is, quite damaging to biological structures.[1] As physicist John Gofman describes it:

With ionizing radiation, electrons are removed from their atoms, and endowed with energies huge compared to those in ordinary chemical reactions. Such electrons maraud for great distances (compared with atomic dimensions in angstroms) and have the chemical capability to break any kind of bond one might care to visualize. In living biochemical systems, reactions are carefully controlled, often by special geometric juxtaposition of the reactants. A marauding high-speed electron simply does not notice this all this elegant juxtaposition? It can break anything, anywhere. And once it has ripped an electron out of an atom in a molecule, that molecule is itself at such a high-energy level that it can produce all kinds of chemical reactions that would never have been possible without the ionizing radiation.[2] Therefore, ionizing radiation such as that created by nuclear waste, causes by its very nature an accelerated entropy of biological systems.

In the human cell, certain chemical bonds are crucial to the integrity of the genetic code and breaking just a few of these bonds may endow the code with a permanent alteration. When a mutated gene is responsible for regulating normal cell growth, an uncontrolled proliferation of damaged cells, or **cancer**, can develop. When mutation occurs in the procreative cells or in the developing embryo, **birth defects** can result. When mutation occurs in the blood-forming tissue, **impairment of the immune response system** can result, and this can **increase susceptibility to an entire spectrum of human disease**. **Radiation is therefore said to be mutagenic (cell-mutating), carcinogenic (cancer-causing), teratogenic (birth-defect inducing), and immuno-suppressing (resistance-impairing).** All of these effects, which begin at a submicroscopic level, remain invisible for extended periods of time until they reach observable proportions. The latent period may be decades in the case of an incipient cancer, or it may be centuries in the case of a genetic effect. Another aspect of nuclear waste, then, is human (and other life forms') suffering, ill health and death, over extremely long periods of time,[3] tens of thousands of years in some cases, or longer. Declassified reports from the Manhattan Project show that senior health

physicists knew or suspected that: "... the genetic effect [from radiation] has no threshold and exposure is not only cumulative in the individual, but in succeeding generations.[4] As health physics, microbiology, and human radioepidemiology developed, our early national optimism about the harmlessness of low-level radiation vanished. Repeated studies verified that radiation is a powerful bio-genetic poison, capable of causing irreversible health damage at the lowest measurable doses.[5] Today it has become universally recognized that there is no proven threshold for potentially fatal injury from radiation-that there is no "safe" dose. It is now also widely recognized that all exposures to radiation are cumulative; both in individuals, and in the species as a whole. Indeed, studies have shown that exposure of parents increases the susceptibility of their offspring to cancer.[6] We are thus confronted with accumulating genetic susceptibility to an increasingly radioactive environment, a process which places the survival of the species itself in jeopardy.[7]

Against this backdrop of basic biological sciences of the effects of ionizing radiation on human health and the proven physics of the known half-lives of the documented contaminants at the remains of the Rolphton NPD plant (a range of radionuclides including the deadly plutonium, and additionally other known health hazards including PCB's, lead, mercury and asbestos) we are hereby registering our total objections to the insufficient decommissioning plan currently proposed by the Canadian Nuclear Safety Commission and now under your consideration.

We object to the proceeding of this NPD Closure project on all the following grounds among others:

1. According to the International Atomic Energy Agency (IAEA), "entombment" is not a decommissioning strategy. The IAEA guidelines clearly state that "entombment", whereby waste is encased in concrete and grout, should only be used in exceptional circumstances (e.g., following a severe accident). Indeed, to quote environmentalist Amory Lovens, ""What appears to be a solid wall of meticulously verified empirical bricks proves on closer inspection to be a facade of holes strung together with bits of mortar."[8] We are suggesting the same analysis is apt for concrete and grout!
2. The Rolphton NPD site is located in unceded Algonquin territory, less than 400 meters from the Ottawa River, a heritage river that flows past the Houses of Parliament and provides drinking water to millions of Canadians downstream in Ontario and Quebec. The area is therefore both socially, politically, and seismically active; the Ottawa River is a major fault line. It has also been recently noted that this reactor building is situation directly on top of a "shear zone" which is a very important structural discontinuity surface in the Earth's crust and upper mantle. For all of these reasons, this is clearly a highly unsuitable location and method for permanent disposal of long-lived and hazardous radioactive waste.
3. The identified long-lived radionuclides and other hazardous waste substances including lead, mercury, asbestos, and PCB's could leak into the Ottawa River. After deterioration of the concrete and grout, and/or during earthquakes, floods, other extreme weather events, or dam breaks, leaks from the radioactive "mausoleum" would enter the Ottawa River contaminating drinking water for millions. We repeat, for fear of being ignored, Amory Lovens' simple, yet elegant admonition which applies equally to concrete and grout: "What appears to be a solid wall of meticulously verified empirical bricks proves on closer inspection to be a facade of holes strung together with bits of mortar."
4. Retired nuclear scientists are raising very serious concerns about the proposal. They note that the proposal lacks credibility, employs inadequate technology, would result in radiation doses higher than acceptable to future Canadians, and fails to address Canada's international

obligations under the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. They further note that the proposal does not reduce Canada's nuclear legacy liabilities and may in fact actually increase them, as entombment creates a much more difficult remediation challenge when the concrete and grout break down. Here is a quote from the submission by J. R. Walker:

"NPD will remain a radiological hazard for tens of thousands of years …It is absurd to conclude that cement grout, a reinforced concrete cap above the reactor vessel, and an engineered barrier…over the building footprint will protect the public for that period of time."

5. Much better alternatives are available: The IAEA strongly recommends that long-lived radioactive wastes be put in a geological repository. Dismantling the NPD reactor, removal of wastes from the site, and placement in stable rock below the earth's surface is technically and economically feasible. The consortium's failure to examine this alternative is unacceptable and stands in contrast to countries such as Finland.
6. Currently the sole decision maker for the "NPD entombment" project, as Canada's sole nuclear "regulator", the Canadian Nuclear Safety Commission (CNSC), should properly be viewed as a "captured" regulator which promotes the very projects you are charged with regulating. This is not 'independent" regulation. On the contrary it is yet another example of the abominable practice of allowing the proverbial fox to regulate the proverbial hen house, a view that is supported by the Gélinas Expert Panel on Reform of Environmental Assessment.
7. Canada, being a party to the following international human rights treaties, conventions and covenants, is not protecting its citizens (and environments) nor their natural rights to not become unknowing subjects in what amounts to an actual experimentation by allowing insufficient and unproven technologies of storage of nuclear waste, which has the strong potential to expose them unduly to totally unnecessary releases of ionizing radiation into its water, air, and therefore, food supply: The United Nations Universal Declaration of Human Rights; The United Nations International Covenant on Civil and Political Rights; The United Nations International Covenant on Economic, Social, and Cultural Rights; The United Nations Convention on the Prevention and Punishment of the Crime of Genocide; The Nuremberg Principles; The United Nations Convention on the Rights of a Child; and The Helsinki Agreement. We challenge the authority of the federal government and the CNSC to thereby cause unknown rates of fatal cancers, genetic effects, and incompensible illnesses to the general population of this identified and neighboring region.

Thanking you in advance for including this submission as part of the Environmental Impact Statement regarding this proposed closure project.

[redacted] private citizens for natural rights and environmental care

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[1] Bates, Albert K. The Karma of Kerma: Nuclear Wastes and Natural Rights, Journal of Environmental Law and Litigation Univ. of Oregon School of Law Vol 9, page 3 February 1988 & 1995

[2] Gofman, J.W., Radiation and Human Health (San Francisco: Sierra Club Books, 1981), 23.

[3] Bates, Id., 1

[4] Parker, H.M. Instrumentation and Radiation Protection, Health Physics 38:957, 970, June 1980

[5] Honicker, Petition for Emergency and Remedial Action Before the Nuclear Regulatory Commission (Petition), pp. 8-9 (1978); Mancuso, TY., et al., Radiation exposures of Hanford workers dying from cancer and other causes, Health Physics 33:369 (1977); Kneale, G.W., et al. Re-analysis of data relating to the Hanford study of the cancer risks of radiation workers, Late Biological Effects of Ionizing Radiation, Vol.1 (International Atomic Energy Agency; Vienna, 1978); Kneale, et al. Hanford Radiation Study III: a cohort study of the cancer risks from radiation to workers at Hanford, Br.].Ind.Med. 38:156 (1981)7 Advisory Committee on the Biological Effects of Ionizing Radiation (BEIR 111), The Effects on Populations of Exposure to Low-Levels of Ionizing Radiation: 1980 (Academy Press; Washington, 1981); and Stewart, A.M., Delayed effects of A-bomb radiation: a review of recent mortality rates and risk estimates for five-year survivors, Br.].Epid. and Com.Health, 36:80 (1982).

[6] Petition; ibidat 17; and see, Bross, I.D.J., and N. Natarajan, Cumulative genetic damage in children exposed to preconception and intrauterine radiation, Investig. Radiology 15:52 (1980).

[7] Petition at 150; and see, Bertell, R., Radiation Exposure and Human Species Survival, Envir. Health Rev. (Canadian Inst. of Public Health Inspectors, June 1981), 43-52 (App. Br. at 12).

[8] Lovins, A. Cost-risk-benefit Assessments in Energy Policy, 45 George Washington Law Review S:911 (1977).