

## ***CCNR Submission to CEAA Panel on OPG's Proposed DGR***

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To: Joint Review Panel (CEAA Reference number: 17520)

From: Gordon Edwards, Ph.D., President,  
Canadian Coalition for Nuclear Responsibility

Re: Ontario Power Generation's Proposed  
Deep Geological repository for  
Low-Level and Intermediate-Level Radioactive Wastes

Date: August 13, 2013

### **Introduction**

Thank you for the opportunity to address the panel on this proposal by Ontario Power Generation (OPG) to construct a Deep Geologic Repository (DGR) very close to Lake Huron for the emplacement, management, and eventual abandonment, of so-called low-level and intermediate-level radioactive wastes generated by the operation and maintenance of all of Ontario's existing nuclear power plants, as well as the radioactive debris from the refurbishment of some of those plants – and possibly even the radioactive rubble from the final decommissioning of those plants (i.e. the demolition of the radioactive structures).

The Canadian Coalition for Nuclear Responsibility (CCNR) is a not-for-profit organization. CCNR is a voluntary association of individuals and organizations throughout Canada, who are concerned about issues, policies and impacts on health and the environment related to uranium

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mining, nuclear reactors, nuclear weapons, nuclear regulation, radioactive materials, radioactive contamination and radioactive wastes. CCNR is headquartered in Montreal, Quebec. CCNR has an educational mandate, supplying information and providing explanations of basic scientific principles in down-to-earth language to communities, researchers, journalists, and decision makers, on all such topics.

### **Two Aspects**

CCNR appeals to the Commissioners to carefully consider the difference between these two aspects: (1) the emplacement and management of the wastes, and (2) the abandonment of the wastes.

Whatever recommendation is made by the Panel regarding the emplacement and management of the wastes, guided by the best available science and engineering principles, CCNR believes that the Commissioners cannot in good conscience recommend or approve – explicitly or implicitly – the abandonment of these wastes, because there are no principles of science or engineering that can justify putting these wastes deliberately beyond human control, knowing that many of them will remain hazardous for hundreds of thousands, or even millions, of years.

## **Double Vision**

Canada's nuclear wastes can be, have been, and are, viewed from two quite different perspectives, one belonging to the realm of science and technology, the other belonging to the world of politics and public relations.

On the one hand these are dangerous waste byproducts of nuclear technology that must be safely stored and isolated, sequestered from the environment of living things forever, insofar as that is humanly possible. On this point there is no disagreement between the proponents of nuclear power and the critics of nuclear power, who generally advocate the phasing out of nuclear power and the adoption of non-nuclear alternatives.

On the other hand the perceived difficulty of managing nuclear wastes in perpetuity has become a major public relations problem for the nuclear industry and a political obstacle impeding the expansion of nuclear power as an energy source, even jeopardizing the continued operation of the existing fleet of nuclear power plants which is continually adding to the inventory of radioactive wastes.

This bifurcated view of the question of nuclear wastes leads to a serious conflict of interest for nuclear proponents such as OPG, Bruce Power, AECL, NWMO, and the Governments of Ontario and Canada, because, while they all want to manage nuclear wastes responsibly in the short term, (and the public wants them to do exactly that) they also want to be able to

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say to the public and to the world that the nuclear waste problem has been solved, once and for all. And so far, the public has not always been willing to buy that message.

### **Abandonment**

This politically important statement – that “the nuclear waste problem has been solved” – will not appear credible unless an independent body such as this panel is willing to recommend the abandonment of radioactive waste as a perfectly good strategy, to testify that the abandonment of radiotoxic materials has been “proven” safe scientifically, to assert that the abandonment of long-lived radioactive waste is ethical and morally justified, that, in effect, abandoning radioactive waste in a DGR is the long-sought “permanent solution” to the nuclear waste problem.

CCNR urges each member of this Panel to search his or her conscience and ask, “Do I want to be one of the small handful of people who decided, for the first time in Canadian history, that it is perfectly good practice to abandon long-lived human-made radioactive waste materials? Do I truly believe that our present knowledge of science, technology, and nature is sufficient for me to be certain of the validity of this course of action for the next 100,000 to 1,000,000 years?”

## **An Unsolved Problem**

CCNR is of the opinion that the problem of safely storing radioactive wastes for periods of time that dwarf the span of human history is one of the major unsolved problems of the human race, and it should be acknowledged as such. We should not engage in self-deception nor should we be complicit in deceiving others. We should admit that we do not have a permanent solution to the nuclear waste problem. Not now, anyway.

That is not to say that nuclear waste cannot be safely managed. As the industry is fond of saying, present methods of storage are safe and secure and could be maintained so for many decades or even centuries to come. But this assumes a regime of monitoring and maintenance is in place.

## **Rolling Stewardship**

CCNR believes that the only responsible course of action is one based on total honesty. We have the wastes, and we must guard them carefully. We must package them very well and pass them on to the next generation with the admonition that these wastes are very dangerous and must be maintained in a safe state. The next generation must be prepared to spend money on the wastes, to monitor them and to maintain them. They may find better ways to repackage the wastes, better ways to keep them safely isolated from the environment of living things.

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If and when humanity finally finds a genuine solution to the problem – for example, some technique for neutralizing or destroying these wastes, or some risk-free way of beaming them into the sun or into deep outer space – until then, these wastes will remain a radioactive legacy that must be looked after by each successive generation. We call this concept “rolling stewardship”.

CCNR believes that it is unethical and morally wrong to place these wastes beyond human control. We have created these wastes and we must ensure they are stored safely for generations to come.

### **Out of Sight, Out of Mind?**

The only fundamental difference between the present practice of storing the waste above ground, as is done at the Western Waste Management Facility (WWMF), and moving it underground, into the Deep Geologic Repository, is this: as long as the waste is on the surface, it is clear that this is only a temporary storage measure that requires monitoring and maintenance indefinitely; but once it is moved underground, then abandonment and desertion become not only possible but (according to OPG's way of thinking) inevitable.

CCNR believes that OPG has a “holy grail” in mind – an ulterior motive – and that is political approval for the emplacement, management, and eventual abandonment of high-level radioactive waste in a DGR. High-

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level waste, of course, refers to irradiated nuclear fuel or the resolidified high-level radioactive liquid waste left over from reprocessing irradiated nuclear fuel, as spelled out in AECL and NWMO documents on the subject of a DGR for what they prefer to call “used nuclear fuel”.

### **Confusion of Terms**

The Panel is of course aware of the fact that communities quite close to OPG's proposed site for a DGR for low-level and intermediate-level nuclear waste are exploring the possibility of hosting another DGR for high-level radioactive waste.

The confusion caused by the industry's use of exactly the same term – DGR, or Deep Geological Repository – for both categories of radioactive waste is not accidental, we believe, but deliberate. Ordinary citizens, already mystified by much of the science and technology surrounding nuclear power, already puzzled by the nature of radioactive waste and the differences between high-level, medium-level and low-level, and between alpha, beta and gamma radiation, are further confused by the use of exactly the same term for two supposedly quite different projects.

CCNR believes that this confusion is deliberate because it runs counter to the common practice in mathematics, science and engineering to avoid using the same term for different concepts, especially when there is a high likelihood of both concepts appearing in the same discussion.

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The involvement of NWMO in the proposed low-level and intermediate-level DGR, when NWMO's mandate is exclusively associated with and limited to a high-level radioactive waste DGR, simply adds to the confusion – and blurs the distinction even further. This confusion between the two DGR concepts has got to the point where even the local Medical Officer has some difficulty distinguishing between the one DGR and the other DGR.

### **An Appeal to the Panel**

CCNR is therefore appealing to Panel members to remain cognizant of the fact that any recommendation the Panel may make regarding the current proposal for OPG's DGR for low-level and intermediate-level wastes may well be interpreted by citizens, decision-makers and the nuclear industry in inappropriate contexts, in ways that go far beyond anything that the panel intended. It is therefore incumbent on the panel to be very precise and explicit in stating its conclusions to prevent misunderstandings or misuse of the panel's findings.

### **Commissioning a Dump**

There is a world of difference between viewing a DGR as a temporary "holding tank" for nuclear waste, where all the waste is available at all times for monitoring, maintenance and retrieval, versus the concept of a repository as a permanent mausoleum where nuclear waste will be

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abandoned. In that case the Deep Geological Repository (DGR) becomes a Deep Underground Dump (DUD). No matter how pretty the packaging looks initially, if there is no idea of ever retrieving the stuff, it's a dump.

In the case of a DUD, all the terminology is turned upside down. What OPG calls "decommissioning the DGR" is actually "commissioning the DUD". Because the DUD has only started to be a permanent dump when abandonment has taken place and is irreversible. Then the dump is really functioning as it was intended, as a place to hold deserted radioactive junk for countless thousands of years into the future.

Think of a nuclear reactor. The structure is designed and built over many years, the fuel is placed in the fuel channels, the machinery is tested, and when everything is ready it starts to operate. Of course many problems may develop during the operation of the reactor that were not anticipated during the design and construction phase; that's why you have to have an operating licence and ongoing regulation of the reactor. When it comes time to decommission the reactor, you remove the irradiated nuclear fuel, you drain out the radioactively contaminated coolant, and eventually you dismantle the radioactive structure, leaving nothing behind (in theory!) but a "green field". It is (one hopes) as if there had never been a reactor there in the first place.

Well, that's not how a deep underground dump works.

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All of the packaging, emplacing, monitoring and maintaining of the waste prior to sealing the DGR is just part of the construction phase of the DUD as a nuclear facility. Once it's sealed up, that's when it really starts operating as a dump. But there is no one there to regulate it. There is no staff to respond to unforeseen events. And, of course, there never will be an actual decommissioning of the DUD – unless nature decides to decommission it in its own awe-inspiring way. The intention is to turn our backs on this nuclear facility and let it operate in its own way, as planned or not as planned – there will be nobody around to observe its behaviour.

The pyramids of Egypt are only 5,000 years old, or thereabouts; the DUD will still be in its infancy after 5,000 years. The entire Great Lakes watershed – including Lakes Superior, Huron, Michigan, Erie, Ontario, and all the interconnecting rivers – was created at the end of the last glaciation, less than 15,000 years ago. Fifteen thousand years is just a drop in the bucket for the nuclear hourglass that is the proposed DUD.

### **CCNR Presentation**

The CCNR Presentation will focus on numerous writings, arguments, and official studies that have been done on the subject of nuclear waste that have a bearing on the central debate over the goal that we should be striving for.

Do we want to manage these wastes responsibly for as long as takes?

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Or do we want to turn our backs on these wastes and abandon them, pretending that our decision is based on impeccable science when it is really based on a somewhat advanced form of wishful thinking?

That is one of the most important questions that the Panel will have to consider.