**A Brief Citizen Response to CNSC REGDOC 1.2.3. to Declare Why I Stand against the Proposed NWMO DGR**

 **Submitted by Dr. Sandy Greer, PhD ©**

**PREAMBLE**

The following brief comments are communicated after 10 years of speaking out in much greater detail about all the reasons why any proposed deep geological repository (DGR) continues to have no scientific justification, and absolutely no evidence that long term safety can even be suggested.

My primary reason to contribute to this draft guide on DGR `Site Preparation’ is to be on public record to communicate my perception that public consultation is a meaningless exercise which communicates a false message to concerned citizens that our views actually matter, because the end game of the Canadian Nuclear Safety Commission (CNSC) – as I have experienced it for 10 years - is simply to rubber stamp every single nuclear project and exploit occasional bits of citizen input while still moving forward on every project desired by the nuclear industry.

Something needs to change within the CNSC and, in turn, the entire trajectory of the federal government, which includes seriously flawed legislation, - for example the powers given to the Nuclear Waste Management Organization (NWMO) – in order to regain public trust. Consider that only one single comment from the public is posted on the final day of the May 23rd deadline for public consultation.

Concerned citizens such as myself, who have devoted many many hours over a number of years – voluntarily – in continuous efforts from our own independent and intelligent time-consuming research, to spell out the limitations of science and other major flaws in increasingly experimental nuclear projects, feel as if we are treated with contempt. Please prove me wrong in concluding the CNSC lost any moral radar it might once have had, by being seen to do whatever the nuclear power holders want, regardless of no authentic evidence existing how the future environment can be safeguarded. Much more humility is needed about our human limitations, and a more genuine demonstration from the CNSC that it is aware about limitations to what we perpetrate on the planet’s environment.

**COMMENTS on 3.3 Operating performance**

 It is not good enough for the CNSC to make demands on the NWMO to deliver information which it identifies within this section of the draft guide for `Site Preparation,’ and fully allow the NWMO to reach out to communities to determine site selection without telling such communities all of these details ***prior to*** site selection.

But doing so, in truth, would expose even more so what the NWMO does not yet know nor may ever be able to figure out – and be able to show the evidence.

For example, see under **Draft 3.3** on PDF page 13, this specific requirement:

*“outline the strategy that the applicant will take, including development of mitigation measures, upon discovery of additional risks to the health and safety of the public that were not anticipated during the licence application process”*

Such a request surely is within the realm of conjecture. For starters, even if such mitigation measures were being developed, there absolutely would be no proof that they could be effective. This type of requirement treats the community members who live in proximity of a proposed DGR as if they are fools. Sadly, the actual fools are the municipal councils who see only the money being offered, rather than the sacrifice of clean water pathways and food security for the future generations.

Next, under **Draft 3.3** on the same page is a more down-to-earth request, to list hazards which include: noise from blasting (etc.); chemical; mechanical from excavation (etc.), dust from overburden and rock removal (etc.), and more.

But, a major shortcoming of `Site Preparation’ - related to Site Characterization -appears not to have improved since the previous proposal by Ontario Power Generation, Inc. related to its proposed low-and-intermediate level DGR. Such impact estimations are limited only to the site perimeters, but totally neglect to include the impacts on the wider region in regard – just as one example – the need to transport a huge amount of gravel and sand to construct the DGR shaft as well as the tunnels over a long period of time, with various environmental and social impacts from widening roads, regular traffic of gravel trucks, and related negative impacts upon neighbouring farmlands and the surrounding ecosystems.

For the above reason alone – the lack of responsibility and essential safeguarding to the larger region by the proponent, where socially and environmental and negative impacts are inevitable, as per the broader land-based way of life which contributes food security (whether farming in midwestern Ontario or wildlife in northern Ontario) – is totally unacceptable. Rural and remote ways of life ought not to be treated as dispensable, nor the natural environment be treated merely as collateral damage. Doing so is unconscionable.

**COMMENTS on 3.4 Safety** analysis

 Please know that I have read a few of the many added documents which are identified as further regulatory material which pertains to Site Preparation. For example, I scrolled through the numerous “external hazards” in **Appendix C of REGDOC-2.4.4.**

I find it very perplexing how the CNSC identifies very clearly the numerous examples of what could go wrong, such as examples of “postulated initiating events (PIEs), under **C.1** on HTML pages 21 and 22. This information accompanies what you write on PDF page 14 within the **3.4 Safety Analysis**:

*“considerations for both design-basis events and beyond-design basis events for the operational phase, with a focus on the concept of cliff-edge effects when analyzing external hazards,* ***where a small change of conditions may lead to a catastrophic increase in the severity of consequences*** [my bold].*”*

You ask for an “*analysis of external hazards at the site evaluation stage, to confirm that the facility will withstand events as described.”* Seriously? How is doing so humanly possible or have any credibility? The above example numbers among other requirements which read as intellectual conceptual exercises which cannot be verifiable in real time and real space on the ground in the real world.

**COMMENTS on 3.5 Physical design**

 Another observation is the tendency to be too generic in this draft guide, and not identify DGR shaft per se nor the above-ground encapsulation facility, the latter where all used fuel bundles transported to the proposed site must be repackaged before being lowered into the DGR shaft to store in deep tunnels.

The fact is, not just the deep shaft and horizontal tunneling is experimental, but the design of the above-ground encapsulation facility is conceptual, regardless of the Finnish DGR activities. In Finland, no operating licence has yet been received, let alone any part of the shaft or above-ground facility operating beyond conceptual designs.

What bothers me as well is the outcome of designating “the exclusion zone,” after which it is logical for understandable national security and related reasons that no one outside of officially designated personnel would be allowed inside the zone. But – and this is a big “BUT” - is the NWMO being mandated to do not just baseline monitoring of any water pathways, i.e. the Teeswater River, and nearby sediments ***within the zone*** yet, also important, to continue doing regular monitoring through all years of construction and operation, to be transparent about the various ways that radionuclides and non-radioactive materials could be accumulating in the environment throughout the zone? (I recall very powerfully how Environment Canada during the two public hearings about the OPG DGR were not at all satisfied with what OPG and NWMO consultants stated in regard to the settling pond design.)

**COMMENTS on 3.11 Waste management**

 The first sentence within this section reads: *“For site preparation of a DGR facility, activities should not involve handling radioactive materials, nor the generation of any radioactive wastes.”*

That requirement is reasonable, given the assumption that it refers only to the used fuel bundles which are planned for transportation to the selected DGR site, once the site is operational and, at that time, repackaging will be done.

However, again, I point out the importance that baseline monitoring should be done, even prior to any site preparation but absolutely mandatory when it begins. According to what I hear from concerned citizens in the Municipality of South Bruce, the NWMO refuses to do specific types of monitoring prior to official site selection. Therefore, the possibility of background radioactive materials in the waterways or bedrock apparently are not being addressed. As for well water testing, the lack of trust by a number of local residents in regard to the NWMO has caused them to refuse to participate in a well water testing programme funded by the NWMO. A few citizens had discussed instead paying for their own independent water testing but I am not privy to the outcomes at this time.

Meanwhile, I feel morally obliged to communicate what I discovered in reading at least three annual water reports where I currently live in Blyth, immediately south of my former home in South Bruce. The strontium levels in all Blyth wells are six to seven times higher than the maximum regulatory limit in Ontario of 7,000 ug/L. What was suggested to me is that the strontium could be in the bedrock, in other words, the strontium is perceived as part of natural background radioactive material in the terrain (as distinct from Strontium 90 from the nuclear power plant). Nevertheless, my research indicates that any type of strontium has dangers for babies and young children, and I will be making a noise to get better attention paid to it by the Municipality of North Huron.

I mention the above as my rationale for emphasizing the importance of getting baseline monitoring done, because the hazardous materials must recognize what already exists in the natural terrain including water pathways. My own view is that the NWMO ought to have been studying the terrain in South Bruce for such natural background radioactive materials as well as doing its borehole drilling.

**COMMENTS on 1.3 Relevant legislation**

 My final concern to document in this submission relates to what seems to be an open-ended question – lacking in any full transparency from either the NWMO in what it communicates, or from the CNSC as per this draft guide – about what types of radioactive waste in future could end up in the currently proposed DGR (given the development of small modular nuclear reactors and related versions), and from what geographic origins, namely, outside of Canada.

Itemized under the Nuclear Safety and Control Act is section **26**, which begins:

*“Subject to the regulations, no person shall, except in accordance with a licence,*

1. *possess, transfer, import, export, use or abandon a nuclear substance, prescribed equipment or prescribed information;*
2. *mine, produce, refine, convert, enrich, process, reprocess, package,*

*transport, manage, store or dispose of a nuclear substance;*

1. *produce or service prescribed equipment; …*

Also, section **3** is itemized, under the Nuclear Non-Proliferation Import and Export Control Regulations (NNPIECR). Section **3** is titled **Application for Licence to Import or Export**.

My question is, why are the above specific pieces of legislation included in the CNSC draft guide for `Site Preparation’? Much more transparency is needed in the final guide, because the NWMO for a long time communicated that only Canadian-produced high level radioactive waste will be buried in a future DGR. Nor is there full transparency that various types of waste will end up in it too. Most recently, the NWMO has distributed a public announcement dated May 16, 2023 titled **U.S. DOE and Canada’s NWMO sign joint Statement of Intent to Co-operate on Used Nuclear Fuel Management**.

Obviously, the identification of Section **3** in the NNPIECR leaves the door wide open to allow not only information to be exchanged across binational boundaries, even if that is the original intention of the Joint Statement. The latter is all about public relations and the hubris of the NWMO boasting about its international community in which it feels so important.

The tone of this piece of PR, however, clearly communicates the determination of NWMO to have its way in the successful deep burial of radioactive waste. I have no polite words for its aggressive and manipulated pursuit of a so-called “consent-based siting process,” and pray that somehow it will be stopped.

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