

NUCLEAR WASTE STORAGE

To comment in this regard is to seemingly acknowledge that sufficient knowledge exists as to which of several “proven choices” will provide safe storage facilities for all types of nuclear waste. I do not believe that such knowledge exists and therefore should not comment, since by doing so unfortunately implies that I accept your assumption and am willing to “play by your rules”. However, by not commenting I would be sending the same message – a typical Catch 22. Therefore, I will comment.

Ideally, now is the time to institute a moratorium regarding the development of permanent storage facilities for nuclear waste in Canada – at least until we are reasonably certain regarding the probability of success for the next 100,000 years – a goal that presently is far beyond our reach. Up to this point the nuclear industry, at least in Ontario, has been making assumptions that Hydro One is knowledgeable regarding the best location to construct a permanent storage location for low and medium risk nuclear waste. That was obviously a pipe dream. Now we are asked to provide knowledgeable suggestions regarding the permanent storage of (presumably) all levels of nuclear waste. It is unreasonable to expect average members of the public to provide knowledgeable input to such a complex problem – but now you will be able to say that “we welcomed public input through all phases of this program”.

The following quote is from the August, 2016, Vol. 12, Number 4, p.233, issue of Elements (attached), (a well-respected international magazine of Mineralogy, Geochemistry and Petrology):

- “After more than 50 years of effort, there are at present no operating nuclear waste repositories for the spent nuclear fuel from commercial nuclear power plants or for the high-level waste from the reprocessing of spent fuel.”

Intuitively, sedimentary rock, one of our 2 apparent choices here in Ontario, should not be considered, owing to its long-term solubility, which can lead to the formation of water-bearing karst, ultimately leading to the invasion of radioactivity in the event of containment failure.

While other countries, such as Sweden, appear to be far ahead of Canada researching possible site-types, crystalline rock, such as the granitic (igneous/metamorphic) types found in the Precambrian Shield seems to be our only viable alternative, and it comes with certain inherent problems such as the occurrence of abundant ground water, the presence of which in purest form will be critical for the viability of life on earth within the foreseeable* future.

The introduction of radioactivity into groundwater is indeed our “worst case scenario”.

Underground storage facilities can never be certified as “forever-safe”, owing to the inherent variability and instability of in-ground conditions. If “permanent” sites develop future containment problems, repairs will be insurmountable owing to the presence of emigrating radioactive waste.

My suggestion would be to develop interim above ground facilities, which could be monitored and repaired in the event of structural problems, until a satisfactory method for permanent storage can be perfected.

Realistic concerns already exist regarding the breaching of facilities by terrorists, since containment facilities already emerge above ground, so why the paranoia regarding above ground storage?

Realistically, it's time to acknowledge the fact that "the cart is presently far ahead of the horse"; i.e. we seem to be prepared to proceed with unperfected storage facilities, without the proof of knowledge necessary to guarantee "forever safe". If Canada expects to ever become a world leader in nuclear power, we had better be prepared to fund massive research programs, beginning immediately.

"Out of sight – out of mind" will only be applicable if/when we have adequately researched the problem objectively; not with the assumed stance that "we are almost there." We are not!

*I apologize for the use of the phrase "foreseeable future", an obvious oxymoron, but it seemed appropriate in light of these rather unrealistic circumstances.

Mike Wilton,

Algonquin Eco Watch.

December 17th, 2018.