

COMMENTS ON “CHOOSING A WAY FORWARD”

By

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It is refreshing to see an approach which is adaptive as well as phased. In the past, concepts for nuclear fuel waste management (NFWM) have dogmatically focussed on only one of many possible options, to the exclusion of the rest. Though the approach being contemplated by NWMO is realistic on the whole, there is one show-stopper, namely, selection of a preferred site in Year 10 (second box in the timeline). Over the past almost 30 years, it has become abundantly clear that the public vehemently opposes the idea of designating a site for disposing of nuclear fuel waste, or any activity even remotely connected to it. And that isn't going to change in the next 10 years. Therefore, the only practical option is to permanently manage nuclear fuel waste within the sites allocated to nuclear generating stations (NGS), where the waste is produced in the first place. There is no reason why the nuclear fuel waste cannot be disposed (as opposed to stored) at such sites.

I would like to suggest that we re-examine two of the principal ideas supporting most concepts for NFWM: 1) that somewhere there is a mass of unfractured rock; and 2) that somewhere there is a community willing to host a nuclear fuel waste disposal site.

Close to 30 years of investigations have shown that neither of the above notions is supported by facts as they exist in the real world. In the late seventies, the pioneers of NFWM conceptualized that the ideal scenario would be a community of nuke-loving locals, somewhere way up north in the Boreal forest, living on top of an infinitely big, unfractured rock body. This concept was top-down, thought up by academics and national-lab administrators. It never had much support from those who know the ground realities, i.e., experts in mine geology, and most importantly the general public. The utilities were, at best, lukewarm to this idea.

The extensive, high-quality research done by AECL for its Nuclear Fuel Waste Management Program has demonstrated that batholiths and plutons, once thought to be massive and fracture free, in reality always have a complex pattern of water-conducting fractures reaching down to a depth of a kilometre, and most likely beyond. Therefore, the “geological barrier” by itself, is never going to be sufficient for the isolation of nuclear fuel waste. However, AECL's research has also shown that the shortcomings of the geological barrier can be adequately compensated for by the “engineered barrier.” In fact the so called concept of “geological disposal” relies more on engineered barriers than it does on the rock body for waste isolation.

A workable approach would be to modify your adaptive phased approach to eliminate selection of sites away from generating stations and concentrate on characterizing sites at these stations and designing engineered barriers to make up for any geological deficiencies they may have. As noted earlier, that would mean elimination of Box 2 in

your timeline as well as Box 4. The rest of the plan can stay pretty much as it is now. So far, it has always been assumed that waste can only be stored but not disposed at NGS sites. We need to get rid of that mental block.

There are many advantages to disposing nuclear fuel waste at nuclear generating stations. The whole issue of transportation of waste would be eliminated. The physical security at these sites already exists and is of the highest standards. Stringent site selection was undertaken before any site was selected for a generating station, and that takes care of issues such as seismicity and meteorological events. Infrastructure for programs common to all nuclear activities, such as radiation protection, already exist.

When the nuclear industry expands and more generating stations are built, to the site selection criteria we can add the suitability for waste disposal.

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