



Canadian Nuclear Safety Commission Questions the OPG Assumption about Sedimentary Rock as being Suited to OPG's DGR for Low and Intermediate-Level Radioactive Waste, and Raises Questions about 'misleading statements'.

[PMD 14-p1.2c CNSC Staff Presentation Joint Review Panel Hearing, 9-19 September 2014, e-Doc447025PPT, e-Doc 4492932pdf](#)

On most occasions during the Joint Review Panel Hearing of 2013 and 2014, the Canadian Nuclear Safety Commission (CNSC) was lethargic in its critique of the OPG proposal to bury up to 400,000 cubic metres of radioactive waste in the sedimentary rock DGR on the shore of Lake Huron; but we witnessed one presentation that made us sit up and take notice of the ongoing sedimentary and granitic geology dispute between them.

In their 2014 PowerPoint, CNSC was critical of the OPG's Independent Expert Group Report (IEG) report that claimed suitability of limestone over granite for the DGR. Although OPG had described the Kincardine limestone as 'ideal', CNSC came close to telling them that granite was the most suitable host rock for a DGR. Current international practices noted in the NEC OECD guidance documents, and the CNSCs own work at the Whiteshell Laboratories Underground Research Laboratory (URL) in Pinewa, Manitoba, are based on granite DGR construction.

CNSC Slide 5 says: 'CNSC Staff Assessment Methodology is based on IAEA and CNSC guidance documents, independent CNSC research on the safety of geological disposal in sedimentary rocks and Canadian Shield rocks and experience gained from CNSC's involvement in the Seaborn Panel.'

CNSC Slide 6 says that the OPG/IEG Report on Pathways of Harm includes, "misleading statements ... and what they imply about granite in the Canadian Shield when comparing the Bruce DGR site with a hypothetical site in the Canadian shield, such as characteristic fractures in the Canadian Shield granite"; and, "omission of short-term risk of tritium exposure".

CNSC Slide 7 is titled, 'Baseline Information-Characteristics of Fractures in Canadian Shield Granite (1)' and says that the critique of granite is misleading,

- "Statements in the IEG report are misleading, for example: "All granite bodies in the Canadian Shield are known to be naturally fractured, and the details of the disposition, extent, connectivity and aperture (opening size) of these fractures are uncertain and no amount of investigation can reduce the uncertainty to zero" ([IEG report](#) page 11)

CNSC goes on to say, "Statements like those given in the example give the impression that limestone is not "naturally fractured".

CNSC Slide 8 is titled, 'Baseline Information – Characteristics of Fractures in Canadian Shield Granite (2)', and refers to the federal underground research laboratory (URL) and test DGR facility built between 1980 and 2015 at Whiteshell Laboratory in Pinawa Manitoba, but doesn't name the URL itself. CNSC notes in praise of granitic rock,

- "However, the Lac du Bonnet Batholith in the Canadian Shield was characterized as sparsely fractured granite during previous investigations conducted by Atomic Energy of Canada Limited
- Out of context statements about rock types could lead to misconceptions about the suitability requirements for this, or other, deep geological repository projects"

CNSC slides 9-12 critique the IEG assessment of the following subject areas: loss of institutional control, tritium exposure (CNSC indicates that passive releases of tritiated water are high in the Low-Level Storage Buildings, but that inhalation of tritium gas through air is only a low dose concern), worker health and safety including short term high risks in underground mining.

CNSC slide 13 criticizes the IEG reports as 'relatively high level' for Relative Risk Assessment, but after all this concludes, "Concerns associated with key observations do not affect the current safety case for the DGR Project".

On Slide 14 CNSC Relative Risk Perception, indicates among other points, "Risk perception study provides a limited view of public and Aboriginal comments".

On Slide 15 Relative Risk Perception,

- "CNSC is committed to adopting best international practices in terms of social acceptability and siting deep geologic repositories
- CNSC and OPG activities prior to submission of the EIS and license application are aligned with Nuclear Energy Agency guidance: openness, accountability, independence, and competence"

On Slide 16 Relative Risk Perception, CNSC indicates they cannot further comment on

the issue of Social acceptability as it is not a criterion that appears in the NSCA, sidestepping the issue of Social, Cultural and Economic Sustainability required by the CEAA, JRP TOR, and EIS Guidelines.

Conclusion

Remarkably, after such a scathing critique of the work of OPG and the IEG on the suitability of limestone over granite, the CNSC final remarks conclude that there is evidence in favour of limestone for the DGR 1, and that no new information was presented in the IEG report that would change their conclusions as presented in EIS-13-P1.3.

What a preposterous reversal! This will not be the last time that the regulatory authorities dispute what, if any rock, is suitable for the DGR 1 in Kincardine.