

March 6, 2014

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Subject: Deep Geologic Repository Project for Low and Intermediate Level Waste – Submission of Independent Risk Assessment Expert Group Comments on Relative Risk Analysis of Community Acceptance in IR EIS-12-513

Dear Ms. Swami:

The Joint Review Panel thanks the Expert Group for its letter regarding the challenges of assessing community acceptance for the four prescribed options in the local and regional study area and outside of the regional study area, as required in IR EIS 12-513. The Panel has determined that the phrase “community acceptance” requires revision and further explanation. Accordingly, the Panel provides the following clarifications to the Expert Group.

Rather than “community acceptance”, the Panel expects that there be a comparison of *risk perception* (and thus, *risk acceptability*) among the four options. Risk perception, in turn, is affected by the relative degree of uncertainty associated with each option. The Panel notes that risk perception and risk acceptability are also affected by trade-offs among social and ethical values; however, it does not expect that the Expert Group include social and ethical trade-offs in its analysis since that would go well beyond the intended scope of the IR. Rather, the Panel suggests that the Expert Group focus on uncertainty. This is because the technical risk analysis of the four options will have a direct link with the analysis of the effects of the technical uncertainty on risk perception.

The primary uncertainties associated with the management of low and intermediate-level nuclear waste were described in numerous written and oral submissions to the Panel. Many submissions presented comparative risk perceptions and risk acceptability among status quo, enhanced surface storage and deep geologic repositories. These submissions, together with information in the published literature and the Expert Group’s analysis and professional

judgement should be used to produce a relative risk perception/acceptability score for the four options.

The Panel expects that the relative risk perception scores will be related, but not necessarily confined, to the following primary uncertainties identified in submissions and reflected in the published literature:

- Accidents and terrorist threats
- Natural events (particularly seismic events and severe weather)
- Transportation risks
- Efficiency and trustworthiness of the options
- Level of confidence needed before proceeding with a given option
- Ease of monitoring
- Retrievability
- Equitable distribution of risks and benefits (theory that those who generate the waste bear more of the risk)
- Risks to future generations

The Panel also heard from Aboriginal groups with respect to the effect of spiritual and cultural factors on risk perception. The distinctive world view of the Aboriginal groups who presented at the Panel Hearing included the concept of "asking permission" of the earth before proceeding with an underground repository. This is just one example of the additional risk perception dimensions that are added when a proposed project might adversely affect potential or established Aboriginal rights, title or Treaty rights asserted in the area. The Panel refers the Expert Group to the Hearing transcripts for days with formal presentations by Aboriginal groups. Scheduled presentations were made on September 16 and 25, 2013 and October 11 and 30, 2013 by the Saugeen Ojibway Nation. Presentations were made by the Historic Saugeen Métis and the Métis Nation of Ontario on October 7, 2013. This information is in addition to the written submissions prepared by each of these Aboriginal Groups. It may not be possible to use Aboriginal risk perception values to discriminate among the four options. However, the Panel would encourage the Expert Group to comment on how risk perception among Aboriginal peoples might better be acknowledged and incorporated.

The Panel understands that many of the above uncertainties will be assessed as part of other portions of the analysis of the four options (e.g. with respect to risks

to the Safety Case). However, the Panel expects that the analysis then go forward with further consideration of the *perception* of each of the four options, as influenced by the relative degree of technical uncertainty associated with the primary uncertainty issues listed above.

The Panel did not intend that the requirement for the risk analysis to be “defensible and repeatable” would be interpreted as a requirement for “evidence based” analysis. The Panel’s intent was that the analysis be transparent. Transparency produces defensibility. If other investigators understand precisely how the risk analysis results were determined, then repeatability is also possible (although the Panel acknowledges that a different set of experts may produce different outcomes).

The Panel has also determined that the stipulation regarding study area has led to misunderstanding. The Expert Group states in its letter that “there is insufficient information directly relevant to the issue of local and regional community acceptance, based on research having to do with *discriminating* among the four specific options listed in the charge to the Expert Group.” The Panel is aware that there is no formal quantitative or qualitative evidence comparing risk perception and risk acceptability of all four options within the local and regional study areas. In fact, such data would be impossible since there are no granitic bedrock locations in the regional study area. The Panel maintains that use of a combination of evidence provided by submissions as well as published literature is sufficient to discriminate among the options if the Expert Group focusses, as is suggested above, on the effects of relative uncertainty on risk perception and risk acceptability.

The Panel acknowledges paragraph #4 in the Expert Group’s letter of February 18, 2014. While the Group members were not present throughout the public hearing process, there are extensive and varied records available. To assist the Expert Group in this regard, a description of the information sources follows. The Panel recommends accessing the Canadian Environmental Assessment Registry Internet site at www.ceaa-acee.gc.ca. In the folder called “Hearing Documents”, the Expert Group will find both Daily Agenda files (example, document #1563) and daily Hearing Transcript files (example, document # 1567). These are in addition to document #1521 that provides a comprehensive preliminary agenda for the first four weeks of the hearing and document #1722 that outlines the hearing agenda for October 28-30, 2013.

The daily agendas provide a complete list of registered participants for each day and the Hearing Transcripts are a verbatim record of what was said each day. The Expert Group members then have the additional option of watching the daily webcast to obtain information. Webcasts for each day of the public hearing can be accessed at www.nuclearsafety.gc.ca. If you have any questions regarding the search functions of the CEEA on- line project registry, please contact Debra Myles at (613)957-0626.

The Panel hopes that the clarifications regarding its expectations for analysis of risk perception and risk acceptability will assist the Expert Group.

Any questions that you have may be directed to the Panel Co-Managers, Kelly McGee at (613) 947-3710 or Debra Myles at (613) 957-0626.

Sincerely,

<original signed by>

Stella Swanson
Chair
Deep Geologic Repository Joint Review Panel

c.c.: James F. Archibald, Joint Review Panel Member
Gunter Muecke, Joint Review Panel Member