

## WM2015 Conference Panel Report

**PANEL SESSION 082:**            **IAEA Special Topic Session – International Underground Research Laboratories (URLs) Part 1 of 2: Experience Gained**

**Session Co-Chairs:**            **Stefan Mayer**, *International Atomic Energy Agency, (Austria)*  
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### Panelists:

- **Ingo Blechschmidt**, *National Cooperative for the Disposal of Radioactive Waste – NAGRA, (Switzerland)*
- **Gerard Bruno**, *International Atomic Energy Agency, (Austria)*
- **Geon Young Kim**, *Korea Atomic Energy Research Institute (KAERI), (South Korea)*
- **Kaoru Koide**, *Tono Geoscience Center, Japan Atomic Energy Agency, (Japan)*
- **Erik Thurner**, *Swedish Nuclear Fuel and Waste Management (SKB), (Sweden)*
- **Stefan Mayer**, *International Atomic Energy Agency, (Austria)*

### **Summary of Presentations:**

Paper/Panel Session 82 consisted of six full paper presentations on the URL experience to date, and ended with a general discussion involving all presenters and the audience. The full presentations included two from the International Atomic Energy Agency (IAEA) that covered the role of underground research facilities (URFs) in supporting the case for repository safety and of the IAEA's URF Network in coordinating international cooperation and access to these facilities. URLs in specific countries and their uses and roles were then discussed by representatives from Sweden, Japan, Switzerland and South Korea. Since the presented papers are full papers and published as part of the Waste Management 2015 Symposium Proceedings, only the discussions are captured in this summary. No reference will be made back to the papers to allow the distilling of salient but generic points from the discussion. Some points of discussion were more appropriate to and therefore repeated in the follow-on session, 098, and will be listed there:

- While including site-specific URF R&D results to the basis to support licensing is not a hard requirement, transferability of data from a generic site must be addressed and confirmation of site-specific properties will be expected. The regulator has to see adequate evidence that such generic data is relevant to support the safety case.
- Will any locale in any country agree to host a repository without there being a site-specific URF? Not likely since site-specific underground data is necessary to support a repository safety case – rather, the key question to address is when in the disposal development process such a site-specific URF is needed or preferred, and if it should be part of the actual repository or a distinct facility.
- To illustrate this, one country is doing both a generic and a site-specific URF. The generic one will continue to serve as a test bed and training ground and the site-specific one will provide data for the safety assessment. It has and continues to offer opportunities to test and improve concepts such as plug design. In addition, a public tour program has been

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documented to positively influence its participants' attitude toward the adequacy of the science and engineering effort supporting the safety case development.

- In two countries where a site has yet to be selected URFs are used to study what conditions are available in the nation's deep underground, to provide underground experience to support a URF when a site is selected, and to enhance public communications.
  
- One URF has been actively used for international cooperative experiments for three decades and as long as interest in international collaborative studies is maintained at a sufficient level, it will remain in operation.
  
- Cost of siting, constructing and operating a URF may vary – and the use of pre-existing access infrastructure could provide efficiency for generic sites. Cost is significant and can scale from a few million to 100 million Euros (or Dollars, or Swiss Francs...) for construction and from 1 to 10s of millions of Euros (or Dollars, or Swiss Francs...) for annual operations, with an obvious correlation to the ambition of the RD&D program. Cooperation and cost-sharing can bring significant benefits for at least part of a national program.
  
- Given this URF experience-base, it is evident that much can be learned from doing collaborative work in a URF, whether generic or site-specific:
  - Training for underground work and maintaining those skills is an important URF function.
  - Building public/stakeholder trust is important and can be aided by allowing URF visits by the regional (at least) public.
  - Interdisciplinary coordination and cooperation is fostered through a URF.