

WM2015 Conference Panel Report

PANEL SESSION 098: IAEA Special Topic Session – International Underground Research Laboratories (URLs) Part 2 of 2: Progress and Plans

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Paper Presenters/Panelists:

- Andrew Orrell, *International Atomic Energy Agency, (Austria)*
- Douglas Weaver, *Los Alamos National Laboratory*
- David Sevougian, *Sandia National Laboratories*
- Frank Hanson, *Sandia National Laboratories*
- Xingguang Zhao, *Beijing Research Institute of Uranium Geology (China)*
- Jiri Slovak, *SURAO-Radioactive Waste Repository Authority, (Czech Republic)*

Summary of Presentations:

Paper/Panel Session 98 consisted of six full paper presentations interspersed with discussion and ended with a general discussion involving all presenters and the audience. The full presentations included two presented by the International Atomic Energy Agency (IAEA) that covered the tactical and strategic considerations in planning and developing an underground research facility (URF). China's planned URF was a topic of considerable interest as was the discussion around the report on the existing and planned uses of a generic URF in the Czech Republic. Work in the United States was reported on by two speakers addressing the experience gained from coordinating testing activities at the Waste Isolation Pilot Plant and the former Yucca Mountain repository project's underground test area and the usefulness of URL work in support of disposal in salt formations. Presented papers were full papers, hence were published as part of the Waste Management 2015 Symposium Proceedings, so only the ensuing discussions are distilled in this summary. Some of the same issues were discussed in this session on planned URL work as were discussed in Session 082 on the URL work experience to date:

- A URL program of work can be continued after a repository has begun operations:
 - To serve as an underground work training facility,
 - To carry out optimization experimental work,
 - As public insight/communications tools (e.g.: mock-ups of repository features), and
 - Serve as bases for supporting new repository programs domestically or internationally.
- In case of a repository unexpected event (accident) a URL may aid in optimizing the features needed to aid recovery.
- The need for a knowledge base to capture older URL experience was discussed and acknowledged.
- Transferability of knowledge, experience and data was discussed at length with agreement that the IAEA URL Network should transfer URL knowledge to new repository programs.
- Lessons learned from the Waste Isolation Pilot Plant fire and release incidents were discussed and salient points that can be used in planning a URL, such as designing in key

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backup systems, were suggested as potentially useful for the URL community.

- Opposition to URL siting has been less pronounced than for repository siting but it is experienced.
- URLs are an integral part of a repository program, both area-specific and site-specific URLs can play a positive role in supporting a safety case at various decision points. Area-specific URLs are in the same host formation but not at the same location as the planned repository.
- A site- or area-specific URL can answer questions about repository constructability.
- Data-collection technology development and testing, and testing of multi-process computer models are important URL activities.
- An active URL program can bring in a new generation of scientists and engineers and train them and keep them engaged to work on the repository program when it develops.
- There may be a synergy between radioactive waste disposal URLs and carbon capture & sequestration URLs since both have rock-sealing requirements. Perhaps some facilities could serve both purposes.
- Some repository programs sell geologic and other data and design information and experience since it is often proprietary. Other share freely. International cooperative work in a URL is shared between participants. IAEA encourages all types of information exchange.
- URL's may not be the most important part of a repository program but can provide data and experience that makes the repository program itself more likely to succeed efficiently.
- The URL is a substantial investment and there may be legitimate fiscal pressure for closing a URL once a repository is operating, but as was discussed in Session 082, there are also very good reasons for maintaining such a facility: training the repository work force, repository optimization testing, recovery tools testing after a mishap, and public communications are the more important ones.