



Workshop – impact of extended interim storage of high-level radioactive waste on the safety of final disposal

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Abstract. Interim storage of high-level radioactive waste will in several countries take longer than the originally planned few decades. Does the extended timeline of interim storage significantly change the input parameters for final disposal? Are there aspects that could previously be neglected but need to be re-evaluated for planning and implementing a deep geological repository (DGR)? Interim storage is structurally separated from the search for a deep geological repository in Germany, and the waste acceptance criteria for waste canisters still have to be defined. However, from the fundamental understanding of processes and geoscientific understanding, it may be possible to identify positive or negative aspects of inventory behaviour or technical measures during interim storage. Taking the requirements of final storage into account when considering extended interim storage offers the possibility of avoiding or minimising developments or changes in high-level radioactive waste during interim storage that may have negative influences on the safe confinement of the waste in a DGR.

In this workshop we want to link discussions regarding extended interim storage to the long-term safety of geological repositories. Aspects of the discussion could be as follows: does the embrittlement of the fuel cladding lead to difficulties in transportation and conditioning of the inventory? Could the decreasing thermal power of the inventory lead to temperatures that will negatively affect safety-relevant aspects? We are looking forward to a multi-faceted, interdisciplinary discussion that may go well beyond the given examples. Confirmed talks related to the workshop's topic will be given by Volker Metz (KIT-INE), Benedict Bongartz (IW University Hanover) and Florence Sentuc (GRS gGmbH). Following these introductory talks, we will discuss the given impulses and evaluate possible outcomes.

Outline.

- I. “Interim storage – final disposal interdependences: Progressing fuel rod degradation processes and their impact on disposal container optimization”, keynote by Volker Metz (KIT INE)
- II. “Hydride reorientation in fuel cladding under interim storage conditions with low hoop stress” by Benedict Bongartz et al. (IW University Hanover)
- III. “Combined approach to safety-relevant aspects from the perspective of extended storage and disposal of high-level radioactive waste” – results from the Kombilyse research project by Florence Sentuc et al. (GRS gGmbH)
- IV. Discussion