



# Evaluation of retrieval concepts for high-level radioactive waste from a deep geological disposal in operation

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Received: 30 March 2023 – Accepted: 23 May 2023 – Published: 6 September 2023

**Abstract.** This research project evaluates retrieval concepts. For this purpose, an evaluation method for assessing retrieval concepts is developed. Safety-relevant criteria for the evaluation of individual retrieval measures and the technically necessary components have to be identified. The criteria are developed on the basis of generic, host-rock-specific concepts. Different national and international retrieval concepts are considered.

Different repository concepts (host rocks and technical concepts) require different retrieval concepts. The influences and effects of implementing the requirement for retrievability must already be identified and evaluated in the scope of the representative preliminary safety assessment (rvSU) included in the site selection procedure in Germany. This requires a suitable evaluation method that facilitates an assessment and classification of the different concepts, based on their measures for retrievability and their safety-related impacts. Both host-rock-specific requirements and different emplacement concepts (borehole and drift emplacement) must be considered.

The BASE (German Federal Office for the Safety of Nuclear Waste Management) research project “Evaluation of Retrieval Concepts” (BeRK) addresses the following research questions: how could different retrievability measures and specific retrieval concepts be comparatively evaluated? How can measures for implementing and optimising retrievability be assessed in terms of their safety significance? How can trade-offs be reconstructed? The criteria to be developed and their derivation are to be presented in a comprehensible manner and are compiled in a criteria catalogue.

The research project contributes to a better understanding of the repository designs with regard to a possible retrievability and allows for better assessments regarding the preliminary safety assessments.