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Uncertainty Chains in the Geological and Geotechnical Barriers of a HAW-disposal site

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When projecting and planning a final high-level radioactive waste disposal site various uncertainties need to be addressed. A geological model is an abstraction of one possibility to interpret the exposed outcrops, drilling results and geophysical data. In numerical modelling the geological model is further simplified due to computational limitations. The behaviour of rocks is modelled with more or less complex constitutive models which are based upon laboratory experiments. Complex constitutive models have a huge range of input parameters, which rarely can be obtained completely by these experiments. The samples, which will be used in the laboratory experiments, are, as the data of the geological model, always a selection of drilling cores. For example, in a mechanical laboratory, harder rocks will be overrepresented in comparison to softer parts of the core.

Since the mentioned uncertainties are not avoidable many authors suggest that an open communication of these uncertainties can support the confidence of the public in the work of the professionals and as well as the projected development of the final disposal site. This contribution will present an overview of these uncertainties in the geological and geotechnical barriers of an final disposal site to discuss the relevance of these.