

GEOSCIENTIFIC SUITABILITY INDICATORS AND CRITERIA FOR SITE EVALUATION OF A NUCLEAR WASTE REPOSITORY

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In Sweden Svensk Kärnbränslehantering AB, SKB is responsible for all handling of the nuclear wastes outside the nuclear power stations. The Swedish reference disposition concept considers an excavated vault at approx. 500 m depth in crystalline rocks. During the last three years SKB has conducted a project in order to:- identify and quantify requirements and preferences regarding conditions and properties in the rock from the perspectives of long-term safety and technology-identify geoscientific suitability indicators and propose criteria that could be used to assess whether requirements are satisfied and to compare sites prior to site investigations and detailed characterization. The long-term performance and safety of the deep repository must always be evaluated by means of an integrated safety assessment but the work with indicators and criteria can provide guidance regarding the assessment's outcome. Furthermore the work with indicators and criteria can concretize how the most important geoscientific conditions and properties are used in the safety evaluation, but also include aspects related to repository layout, construction and general environmental protection. Requirements and preferences for the repository are primarily formulated with respect to function and not directly to individual parameter values. The suitability indicators have been arranged per geoscientific discipline respectively. A geoscientific parameter that can be measured or estimated is considered to be a suitability indicator if a direct requirement or an essential preference has been formulated for the parameter or if the parameter is expected to have great influence on important function analyses.