

FINNISH RESEARCH PROGRAMME ON NUCLEAR WASTE MANAGEMENT KYT2010 – STEERING GROUP'S GUIDELINES FOR 2010 RESEARCH PROJECT SEARCH

The KYT2010 research programme will end at the close of 2010. This programme is linked to the construction licence application for a final disposal facility for spent nuclear fuel and its handling, which, in turn, influences the programme's contents. Strategic analyses and sociological studies form part of the research programme entity.

In 2010, research conducted under the KYT2010 programme will focus on assessing the long-term safety of the final disposal of spent nuclear fuel, particularly engineered barriers. Research topics suitable for the programme and related to the final disposal canister include the stress corrosion and creep strength of copper, copper corrosion caused by water in anoxic conditions, coupled modelling of various processes, microbiological processes and near-field environment chemistry. With respect to the bentonite buffer, proving the functional capacity of the buffer is at issue, based on mathematical modelling linked to experimental studies, e.g. international experimental projects or a domestic one. Particular attention must be paid to problems that might occur when laboratory-scale experimental data is used in full-scale modelling. Research topics also include projects on reactive transport modelling and geomicrobiology. In these fields, domestic expertise should be enhanced and some projects may comprise methodological research in support of the safety analysis. In particular, reactive transport modelling should be applied to chemical modelling of the final disposal environment, for example the transport of alkaline waters and that of oxygen-containing and dilute glacial period meltwaters. Information on the applicability and benefits of reactive transport modelling is required, particularly as regards bentonite and the functional capacity of the canister.

Other research topics suited to the programme include alternatives in nuclear waste management, final disposal as a sociological issue and predicting the behaviour of reinforced concrete structures, in relation to the final disposal of low- and intermediate-level waste.

One of the objectives for 2010 is to conclude the research projects underway as part of this research programme. The criteria set out below will be used as a basis for the selection of all funded projects, regardless of whether the project is new or in progress. The significance and usability of the project will be assessed from the viewpoint of research needs. Networking between actors in the field, combined joint projects and integral entities will be preferred with respect to the projects. The educational effects of projects will be assessed, both in terms of training new experts and generating new expertise. Promotion of training will be considered important when assessing project proposals. In addition to these, scientific merit and profitability, as proven in KYT projects or other contexts, will be emphasised in assessments.