

DESCRIPTION OF THE TRANSPORT MECHANISMS AND PATHWAYS
IN THE FAR FIELD OF A KBS-3 TYPE REPOSITORY

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ABSTRACT

The main purpose of this document is to serve as a reference document for the far field radionuclide transport description within SKB 91. A conceptual description of far field transport in crystalline rock is given together with a discussion of the application of the stream tube concept. In this concept the transport in a complex three-dimensional flow field is divided into a number of imaginary tubes which are modelled independently. The stream tube concept is used as the basis for the radionuclide calculations in SKB 91. Different mathematical models for calculating the transport of radionuclides in fractured rock are compared: advection dispersion models, channeling models and network models. In the SKB 91 project a dual-porosity continuum model based on the one dimensional advection-dispersion equation taking into account matrix diffusion, sorption in the rock matrix and radioactive chain decay.

Furthermore, the data needed for the transport models is discussed and recommended ranges and central values are given.