

SITE SPECIFICITY OF BIOSPHERE PARAMETER VALUES IN PERFORMANCE ASSESSMENTS OF NEAR-SURFACE REPOSITORIES

Th. Zeevaert, G. Volckaert, C. Vandecasleele
SCK•CEN, B-2400 Mol, Belgium

This contribution is dealing with the performance assessment model for near surface repositories in Belgium, developed by SCK•CEN, on behalf of NIRAS/ONDRAF (national Institute for Radioactive Waste and Fissile Materials).

It consists of four submodels called:

- SITE, describing the normal evolution of the burial installation and consequent releases of radionuclides;
- AQUIFER, calculating the transport of the radionuclides with the groundwater to a well or a river; .
- BIOSPHERE, dealing with the transfer, dispersion and accumulation of the radionuclides in the biosphere; and
- DOSE, calculating time-dependent individual doses.

In this paper only the BIOSPHERE and DOSE submodels are considered in detail.

Initially those two submodels were developed in a rather generic way largely based on the methodology and default parameter values of [NRPB/CEA 1979] It became rapidly clear however that this created large deviations from the conditions or situation we were actually concerned with.

As a consequence a literature study was started aiming at the determination of best-estimate values and uncertainty ranges (pdt's where appropriate) specific to situations and conditions prevailing at potential disposal sites in Belgium..

For some characteristic radionuclides results of this study are shown for a typical site, and differences in doses assessed with the generic approach discussed. Also persisting shortcomings are indicated.

Reference

NRPB/CEA: Methodology for evaluating the radiological consequences of radioactive effluents released in normal operations.
Joint Report CEC V/3865/79-EN (1979)