|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Variable influence on process** | | | **Process influence on variables** | | |
| **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** | **Influence present? (Yes/No Description)** | **Time period/Climate domain** | **Handling of influence (How/If not - Why)** |
| Temperature in bedrock | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Sorption coefficients and matrix diffusivities are chosen for relevant temperature conditions. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater flow | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Flow paths, Darcy flux, flow-related transport resistance, advective travel time from site-specific groundwater flow modelling, see Section 3.1 | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater pressure | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas phase flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Repository geometry | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Flow paths and characteristics from site-specific groundwater flow modelling where tunnel layout is implemented in the models, see Section 3.1. | Temperate |
| Periglacial | Flow paths and characteristics from site-specific groundwater flow modelling where tunnel layout is implemented in the models, see Section 3.1. However, repository not explicitly included in groundwater flow model incorporating permafrost. | Periglacial |
| Glacial | Flow paths and characteristics from site-specific groundwater flow modelling where tunnel layout is implemented in the models, see Section 3.1. However, repository not explicitly included in groundwater flow model incorporating an ice sheet. | Glacial |
| Fracture geometry | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Flow-related transport resistance from site-specific groundwater flow modelling, see Section 3.1. Site-specific porosities and formation factors considered in the selection of matrix porosity and diffusivity, see Section 5.3. Site-specific porosities, BET surfaces and stress effects considered in the selection of Kd values, see Section 5.4. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Rock stresses | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Matrix minerals | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Site-specific rock mineralogy considered in the selection of sorption data, see Section 5.4. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture minerals | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Site-specific fracture mineralogy considered in the selection of sorption data, see Section 5.4. However, surface sorption not invoked. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater composition | Yes | Excavation/operation | Process not relevant. | Yes | Excavation/operation | Process not relevant. |
| Temperate | Site-specific water salinity, pH, redox, organic acids, microbes considered in the selection of sorption and diffusion data, see Sections 5.3 and 5.4. | Temperate | Radionuclide concentration and release to the biosphere are calculated. |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Gas composition | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Structural and stray materials | Yes | Excavation/operation | Process not relevant. | No | Excavation/operation | — |
| Temperate | Sorption on structural and stray materials in the geosphere neglected. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Saturation | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |