|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 neglected for radionuclides since engineered barriers are intact. | No | Excavation/operation | — |
| Temperate | Use of Kd approach. Temperature effects are neglected owing to lack of internally consistent data sets for chemical reactions of sorbing radionuclide species. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater flow | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater pressure | Yes | Excavation/operation | Influence neglected; little significance compared with other influences. | 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 | No | Excavation/operation | — | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture geometry | Yes | Excavation/operation | Process neglected for radionuclides since engineered barriers are intact. | No | Excavation/operation | — |
| Temperate | Geometry of flow paths, see Process 6.1. Site-specific porosities, BET surfaces and stress effects considered in the selection of Kd. Surface retardation neglected. | 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 neglected for radionuclides since engineered barriers are intact. | Yes | Excavation/operation | Effect neglected (precipitation effects not accounted for), see Section 5.4.7. |
| Temperate | Site-specific porosities, BET surfaces and stress effects considered in the selection of Kd. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Fracture minerals | Yes | Excavation/operation | Process neglected for radionuclides since engineered barriers are intact. | Yes | Excavation/operation | Direct effects neglected (precipitation effects not accounted for). Also, sorption on fracture surfaces not accounted for, see Section 5.4.7. Mineral equilibrium is considered for establishing background concentration ranges of competing solutes. |
| Temperate | Site-specific porosities, BET surfaces and stress effects considered in the selection of Kd. However, surface retardation neglected. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Groundwater composition | Yes | Excavation/operation | Process neglected for radionuclides since engineered barriers are intact. | Yes | Excavation/operation | Process neglected for radionuclides. |
| Temperate | pH, redox, complexing ligands, salinity (ionic strength), organic acids, microbes considered in the selection of Kd values. | Temperate | Sorption of radionuclides and trace elements not accounted for when main elements determined. For radionuclides, see Section 6.1. |
| 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 | Effect not considered. | No | Excavation/operation | — |
| Temperate | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |
| Saturation | Yes | Excavation/operation | Process neglected for radionuclides since engineered barriers are intact. | No | Excavation/operation | — |
| Temperate | Sorption of radionuclides considered for saturated conditions only. | Temperate |
| Periglacial | Periglacial |
| Glacial | Glacial |