









Matrix 1: Exemplary representation of possible interdependencies between the facts addressed in the exclusion criteria (light blue), minimum requirements (green) and weighing criteria (yellow) of the Site Selection Act (StandAG)

large-scale vertical movements														↻							↻
	active fault zones											↻		↻		↻			↻		
		influences from current or previous mining activities												↻		↻					
			seismic activity								↻			↻		↻					
				volcanic activity										↻		↻		↻		↻	
					age of groundwater						↻										
						↻	rock permeability				↻								↻		
								thickness of the CRZ				↻		↻					↻		
									minimum depth of the CRZ			↻		↻	↻						↻
										area			↻				↻				↻
					↻					preservation of the barrier effect	↻			↻					↻		↻
											transportation of radioactive substances by groundwater movement										
							↻	↻	↻	↻		configuration of the rock bodies									
													spatial characterisation								
											↻				long-term stability of the favourable conditions						
										↻				↻		favourable rock-mechanical properties	↻				
					↻	↻				↻	↻						tendency to form fluid flow paths				
																		gas formation			
																			temperature tolerance		
											↻									retention capacity in the CRZ	
																				↻	hydro-chemical conditions
										↻				↻		↻					protection of the CRZ by the overburden

Matrix 2: Exemplary representation of possible interdependencies between the indicators according to Appendix 1 [StandAG] for assessing the transportation of radioactive substances by groundwater movement in the containment-providing rock zone (CRZ)

flow velocity				
	rock permeability			
		effective diffusion coefficient		
			absolute porosity (claystone)	
				degree of consolidation (claystone)

Matrix 3: Exemplary representation of possible interdependencies between the indicators according to Appendix 9 [StandAG] for assessing the retention capacity in the containment-providing rock zone and 10 [StandAG] for assessing the hydrochemical conditions

K _d value					
	chemical equilibrium between the host rock in the area of the containment-providing rock zone and the deep groundwater contained therein				
		neutral to slightly alkaline conditions			
			anoxic-reducing environment		
				low content of colloids and complexing agents	
					low concentration of carbonate

Matrix 4: Significance of criteria for the “achievable quality of containment” (§24(3) StandAG) for different host rock types and safety concepts

	Rock permeability	Thickness of the CRZ	Transportation of radioactive substances by groundwater movement and diffusion in the CRZ	Configuration of the rock bodies	Tendency to form fluid flow paths	Retention capacity in the CRZ	Hydrochemical conditions
Rock salt	central	secondary but relevant for “preservation of the isolation performance” (integrity of the engineered barriers)	central	central	central	-	-
Claystone	central	central	central	central	central	central	central
Crystalline rock with CRZ	central	unclear, depending on configuration	central	central	central	-	-
Crystalline rock without CRZ (containment by coaction of geological environment and appropriate engineered and geotechnical barriers)	secondary but relevant for “preservation of the isolation performance” (integrity of the engineered barriers)	-	-	secondary but relevant for “preservation of the isolation performance” (integrity of the engineered barriers)	secondary but relevant for “preservation of the isolation performance” (integrity of the engineered barriers)	secondary	secondary but relevant for “preservation of the isolation performance” (integrity of the engineered barriers)

Note: The Site Selection Act assigns the weighing criteria “for transportation through groundwater, for configuration of the rock bodies, for spatial characterisability and for predictability” to the category “achievable quality of containment” / “robustness of the evidence to be expected”. However, criteria for spatial characterisability and predictability are aimed at the second aspect / “robustness of the evidence to be expected”, so they were not considered in this table.

However, the minimum requirements “rock permeability” and “thickness of the CRZ” are also relevant for the “achievable quality of containment”. The same applies to the "tendency to form fluid flow paths", which in the Site Selection Act was (only) assigned to the aspect “preservation of the isolation performance” as well as to the “retention capacity” and “hydrochemical conditions” assigned to “other safety-relevant properties”. On the other hand, the set of criteria and indicators does not include facts relating to the “achievable quality of containment”, which is for example of particular importance for the variant “crystalline rock without CRZ”, e.g. in the context of matrix diffusion.