

EDZ & EdZ, Healing and Sealing in the Belgian HLW/MLW Safety and Feasibility Case

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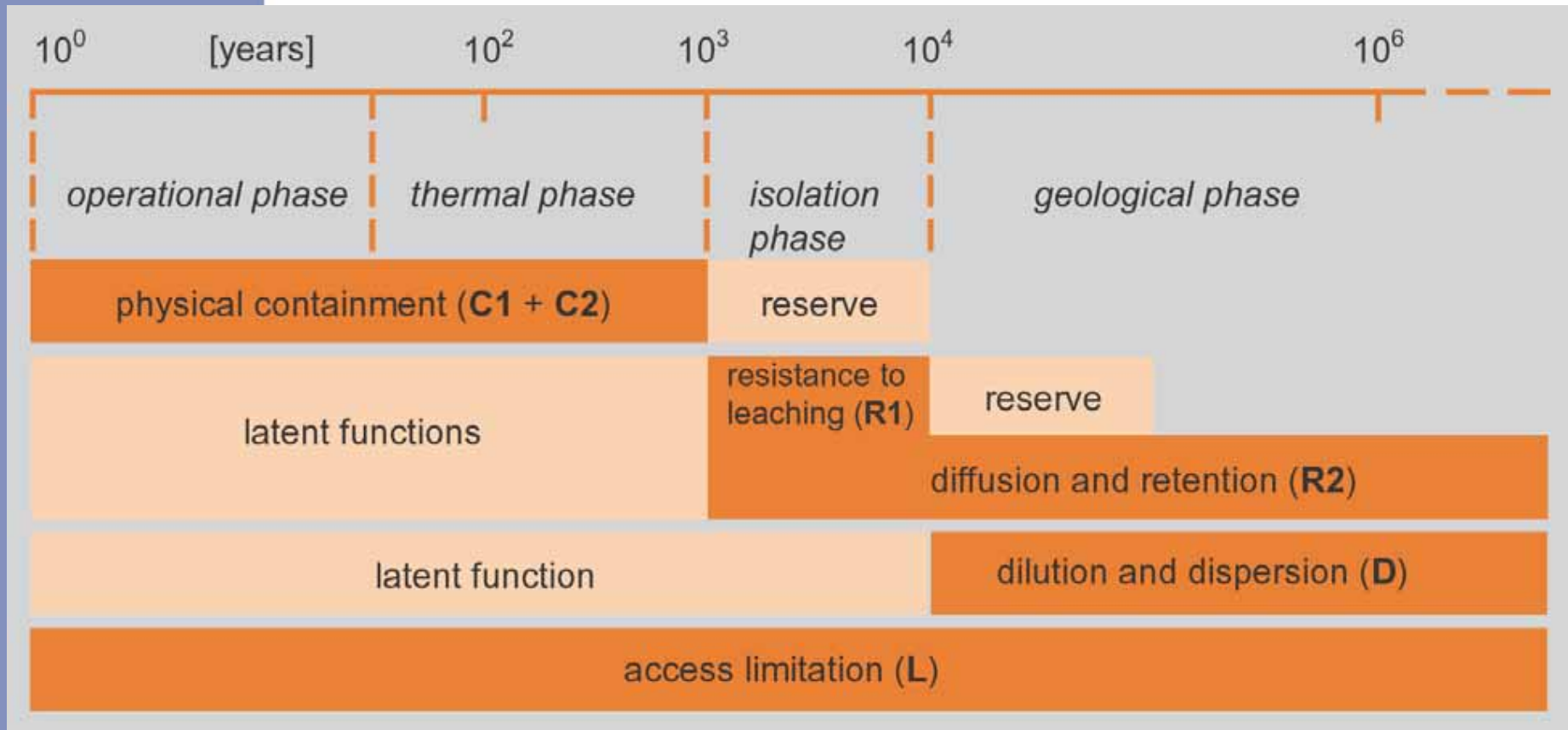


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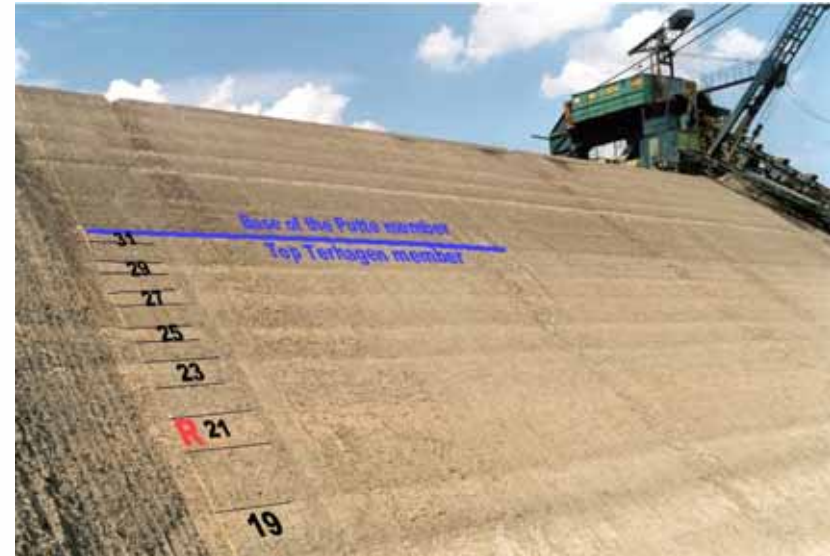
Long-Term Safety Strategy

- Safety functions to be ensured / how / when
 - Physical confinement – C
 - Engineered Barrier System
 - Thermal phase (few 100s to few 1000s y)
 - Resistance to lixiviation – R1
 - Waste matrices (glass, spent fuel)
 - >> 10000y
 - Diffusion and retention – R2
 - Host formation (Boom Clay)
 - ~100000 to ~1000000 y

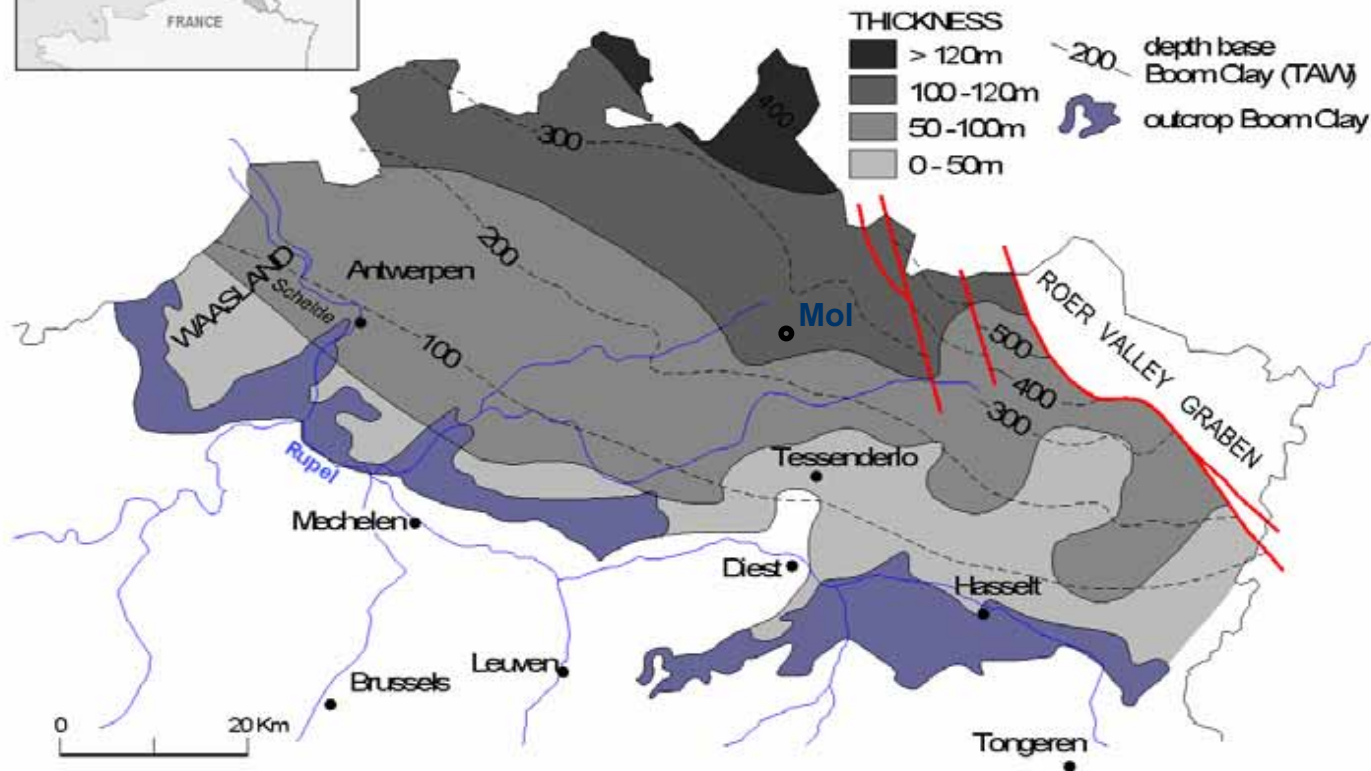




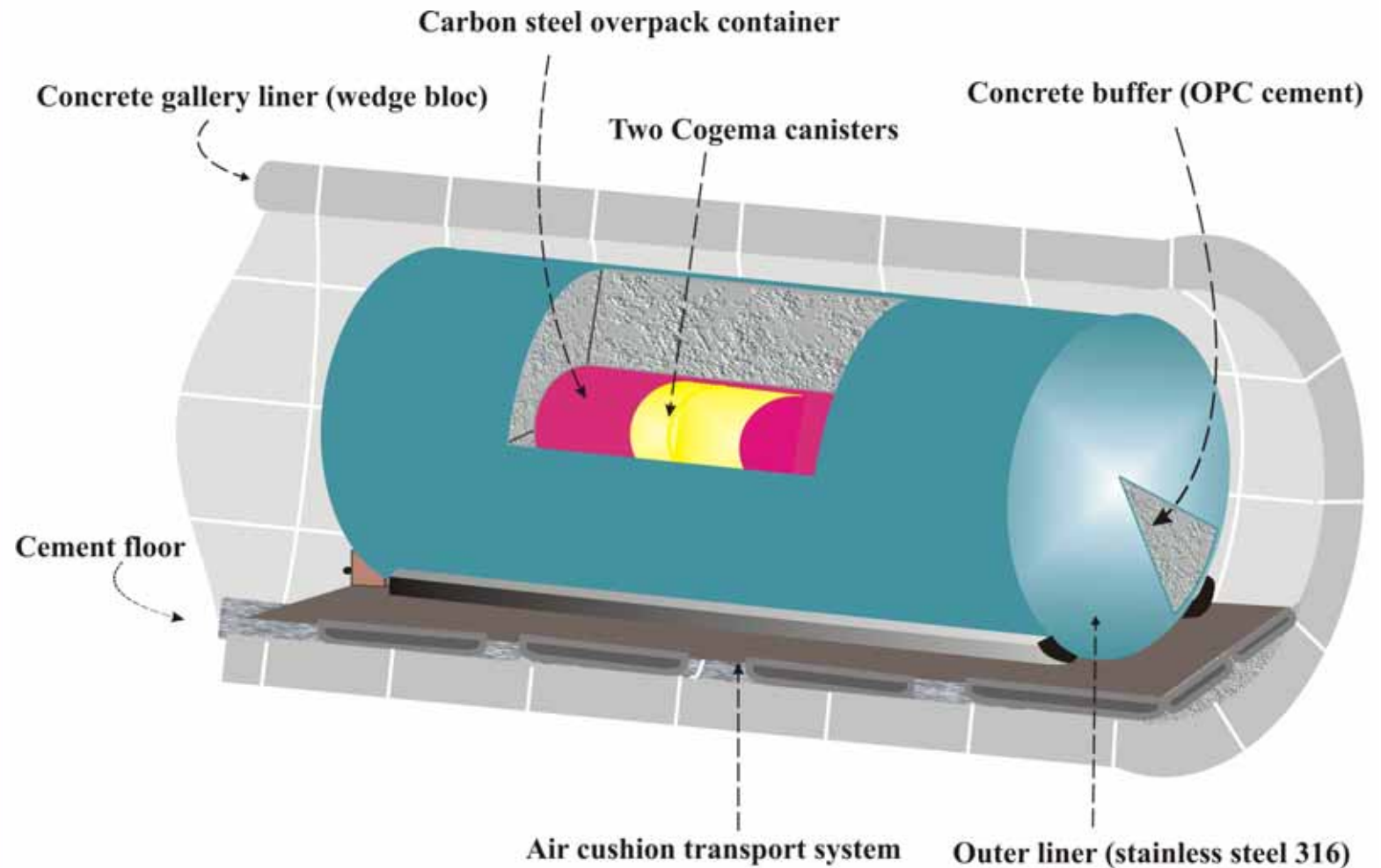
Boom Clay ad Host Formation



The NETHERLANDS

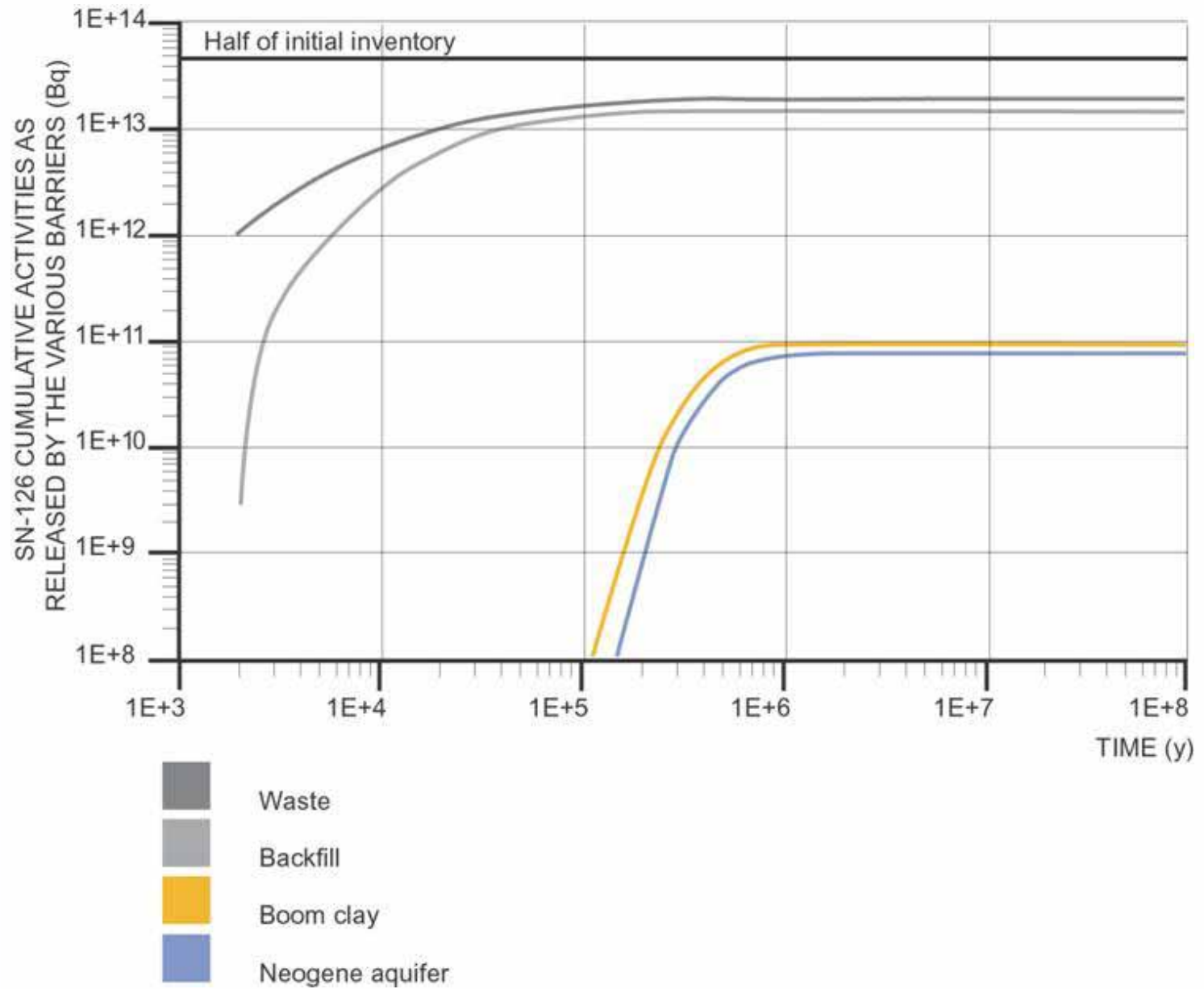


Supercontainer with OPC-based buffer



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Main Contributors to Long-Term Safety (UO₂)



Limitation of repository-induced perturbations to the Boom Clay

- Assessment of THMC perturbations to the Boom Clay and their impacts on the efficiency of the R2 safety function
- Minimization of EDZ
- Assessment of the EDZ and EdZ evolution with time and changing conditions
- How much perturbations can we tolerate without affecting the overall safety (and the reliance of current knowledge)?
- How can these perturbations be handled in PA?
 - Is a mere reduction of the Boom Clay effective thickness adequate?
 - Have water/gas fast pathways scenarios to be considered for radionuclide migration?
 - If yes when? (keep the time perspective)
 - Poor sealing scenario
 - Maintenance of mechanical weaknesses through time

