

Analytical evaluation of the effect of an evolution of redox front to geological disposal system

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It has been considered as a form of repository control that main drifts would be maintained open even after the finish of emplacement of HLW. This could enlarge an area of oxidized zone by an evolution of redox front from the wall surface of the drifts. By using stationary-state model which was applied to a sedimentary rock at Pocos de Caldas such an analysis was performed that dealt with how redox front would evolve in an advection condition after intrusion and dissolution of oxygen gas into groundwater within an excavation disturbed zone through bentonite lining from the wall surface. As a result, it has been grasped that both of redox fronts within two types of rocks would still exist within several meters away from the surface in case of maintenance period of drifts over 370 years.