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Design and Development of Performance Test Facility of Final cover for Near-surface Disposal Facility

In this study, the function and purpose of the disposal cover, which is an engineering barrier installed to isolate the disposal vault of the near-surface disposal facility for radioactive waste from natural/man-made intrusion, and the design details of the demonstration facility for performance verification were described. Disposal cover consists of multiple layers of heterogeneous materials such as sand, clay, and gravel. Cover is aimed at delaying the release of radioactive material into the natural environment as long as possible and isolating radioactive waste from human life for as long as possible. The Demonstration facility was designed in a partially divided form to secure the efficiency of measurement while being the same as the actual size of the surface disposal facility to be built in the Intermediate & low-level radioactive waste disposal site of the Korea Radioactive Waste Agency(KORAD). In this study, the design and construction methods of a test facility were described to demonstrate the performance of a disposal cover that isolates a surface disposal facility from nature. In addition, the design and construction method of monitoring technology that can monitor the safety of engineered barriers in real time by measuring information such as moisture, temperature, and slope safety in real time was also explained.

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