

An approach to establish information basis of Weathered zone for the Safety Assessment to HLW Disposal over long-term.

SHIMEMOTO, Hidenori^{1*} ; WAKASUGI, Keiichiro² ; SHIBATA, Masahiro² ; YAMAGUCHI, Masaaki²

¹Japan Atomic Energy Agency (*Present position: Mitsubishi Materials Techno Corporation), ²Japan Atomic Energy Agency

The consideration of evolution on geological environment is required in the safety assessment of geological disposal for the high level radioactive waste (HLW). The HLW repository can be expected to come close to ground surface assuming a continuous uplift and erosion for a long-term period. Therefore, the consideration of shallow zone (weathered zone) environment is also required. Since the geological condition in the near-surface underground is different from that in the deep underground due to weathering, the basic information and understanding for the near-surface condition are essential for the scenario development. Therefore, information regarding weathered zone is surveyed and arranged based on available literatures.

As a result, 37 data of depth (thickness) of weathered zone were extracted. Then the data distribution and these characteristics for the thickness of weathered zone were discussed. In order to understand the formation process of weathered zone, the relation between weathered zone and landform was also discussed and categorized into four patterns. The key factors which account for the patterns are also analyzed in a qualitative manner.

Regarding the geological property/condition in the weathered zone, although information on hydraulic and chemical conditions are very limited, information on tensile strength and porosity are available.

For the sake of condition setting for near-surface underground in the long-term safety assessment, continuous research and development for the characterization on weathered zone are important.

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