

Important geological conditions for a repository of high-level radioactive waste

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The geological environment has two main functions for ensuring the safety of geological disposal. One relates to the fundamental long-term stability of the site. The other relates to the properties of the host rock formations and groundwater, which facilitate the emplacement of the engineered barrier system and act as a natural barrier. In terms of the long-term stability, it is important to consider the effects of natural phenomena such as fault movement and volcanic activity. Thermo-mechanical properties of the rock mass and hydrogeology and geochemistry of the groundwater must be investigated to evaluate the suitability of a site to host a repository. The state of knowledge of these issues has been compiled into the Second Progress Report on Research and Development for the Geological Disposal of HLW in Japan (H12). H12 also summarized the requirements for the geological environment which should be considered as a part of the process leading to the selection of the repository site.

After the publication of H12, a law relating to final disposal of HLW was officially announced, and then the Nuclear Waste Management Organization of Japan (NUMO) was established as an authorized implementing entity for geological disposal.

Considering such present state of geological disposal program in Japan, knowledge and information in H12 will be re-examined for discussion.