

Study on Examination of the Significant Impacts of Natural Phenomena for Perturbation Scenario for a HLW Disposal System

Makoto Kawamura[1]; Takao Ohi[1]; Tadafumi Niizato[1]; Ken-ichi Yasue[1]; Hitoshi Makino[2]; Tsuneari Ishimaru[1]; Eiji Sasao[1]; Koji Umeda[1]; Toshihiro Seo[3]; Harunaga Yanagawa[4]; Hiroo Okubo[4]

[1] JAEA; [2] JAEA
; [3] GIRDD, JAEA; [4] MRI

<http://www.jaea.go.jp/>

Japanese Atomic Energy Agency (JAEA) improved the concept 'Systematic Relationship Diagram' of the scenario analysis technique. This concept aims at building the examination and consideration to the influence - geological environment condition - design specification - disposal environmental condition - safety feature - evaluation analysis of the natural phenomenon concerning safety evaluation as a series of systems through THMCG: Thermal - Hydrological - Mechanical - Chemical - Geometrical. It can arrange the scenario used as the basis of evaluation comprehensively. Furthermore, it is easy to understand those importance and it can be shown. Based on 'Systematic Relationship Diagram', we examined the methodology of maintenance information required for the importance judgment about impacts of natural phenomena using case study. As a result, it turned out that we can arrange efficiently the information which also includes the excess and deficiency about the data, the knowledge, etc. about the important natural phenomena research and the geological environment for the safety assessment of geological disposal. On the other hand, grasp of geological environmental conditions changes from the past to the present and the future prediction are done by long-term stability research of geological environment. By re-arranging those results of long-term stability research of geological environment using 'Systematic Relationship Diagram', we could grasp the natural phenomena which should be preponderantly taken into consideration at arbitrary examination area. And we were also able to grasp which is the most important THMCG(s) of geological environment conditions according to the phenomenon. Furthermore, based on the result, we were also able to acquire the prospect which can choose efficiently the scenario which should be taken into consideration at the examination area.