

Decommissioning Process “Processing/Disposal/Environment Remediation (including Wastes containing Alpha Nuclides originating from Fuels)”Investigation Subject “**Disposal**”Issue “**Disposal technology according to disposal concept**”

Needs

1. Establishing a disposal technology according to the disposal concept and implementing the disposal

Processing/Disposal/Environment Remediation : [Long 2]

Desired state and reasons for it

- For the disposal of accident wastes, it is desirable to advance and establish a feasible rational and safe disposal technology based on a disposal concept investigated considering the requests and concerns of various stakeholders and the features of the wastes.
- In addition, it is desirable to prepare a method to investigate and establish a new disposal concept and technology in the case when there is a problem with application as a result of performance assessment.

Current state against ideal

- In order to establish measures to address the needs of the disposal concept, a survey of the necessary information and knowledge is being conducted for the waste that the investigation of its waste stream is being proceeded.
- For solid waste disposal, the establishment of a storyboard of critical event progress at disposal facilities has been initiated to extract key scenarios.

Issues to be resolved

- In order to enhance the reliability of the disposal concept, the feasibility of the concept should be evaluated based on a study of the long-term transition behavior of the disposal facility, taking into account the characteristics of solid wastes.
- In addition, in order to appropriately assign waste to a disposal concept that has been shown to be feasible, it is necessary to expand the knowledge of the sensitivity structure of these scenarios and parameters to doses through repeated trials in which the characteristics of the waste material, changes in environmental conditions in and around the disposal facility, and other factors are appropriately reflected in the scenarios and parameters for dose assessment.
- It is also important to utilize this knowledge to present a safe and reasonable disposal option proposal. Furthermore, it is important to expand the scope of the waste stream to reflect these disposal options, to consider a set of disposal options for the entire solid waste stream of the Fukushima Daiichi Nuclear Power Plant, and to contribute to the study of appropriate measures for the specific management of solid waste as a whole, in cooperation with knowledge obtained in fields other than disposal, such as the accuracy required for characterization and the presentation of waste body performance targets.
- Based on the disposal concept, it is necessary to clarify the component elements of the repository and their functions and design the repository.

- It is necessary to confirm by experiment and analysis whether each component element sufficiently performs its expected function.
- If necessary, it is necessary to develop a technology so that each component element performs its expected function.

Relevant Issues

- PDR-203 "Establishing disposal concept"
- PDR-204 "Performance assessment"