

Decommissioning Process “Fuel Debris Retrieval”**Investigation Subject “Criticality Prevention/Cool/Hydrogen (Maintaining stable conditions)”****Issue “Understanding status of fuel for maintaining stable conditions”**

Needs

1. Characterizing stump fuel (including predicting its status in each process)

Desired state and reasons for it

- In order to implement fuel debris retrieval safely, it is desirable to understand the status of the failed fuel (stump fuel), which has not melted during the accident, and to perform safety assessment, especially for the purpose of preventing re-criticality.

Current state against ideal

- Failed fuel (stump fuel) is in various states, for example, some having moderate or serious damage and some overturned or supported by surrounding structures.
- Failed fuel is estimated to be present especially inside the RPV in Unit 2.

Issues to be resolved

- It is necessary to elaborate the information on the criticality of failed fuel (stump fuel), based on the information obtained in the process of fuel debris retrieval. Based on such information, it is necessary to develop a method for determining the unlikelihood of criticality occurring and the impact of criticality. Measurement requirements should be established so that information on parameters having a large impact on criticality evaluation can be obtained in the process of internal investigation and fuel debris retrieval. It is also necessary to review the plan and improve the criticality evaluation method by updating the relevant information as appropriate.
- Assuming different conditions of failed fuel, it is necessary to comprehensively evaluate the possibility of re-criticality.

Relevant Issues

- FDR-207 “Criticality control”
- FDR-209 “Maintaining cooling function”
- FDR-210 “Understanding hydrogen generation behavior”
- FDR-211 “Ensuring structural integrity of PCV and buildings”
- FDR-302 “Fuel debris retrieval inside RPV”