

Decommissioning Process “Common Issues” Investigation Subject “Radiation resistance”

Needs

1. Establishing a radiation resistance technology

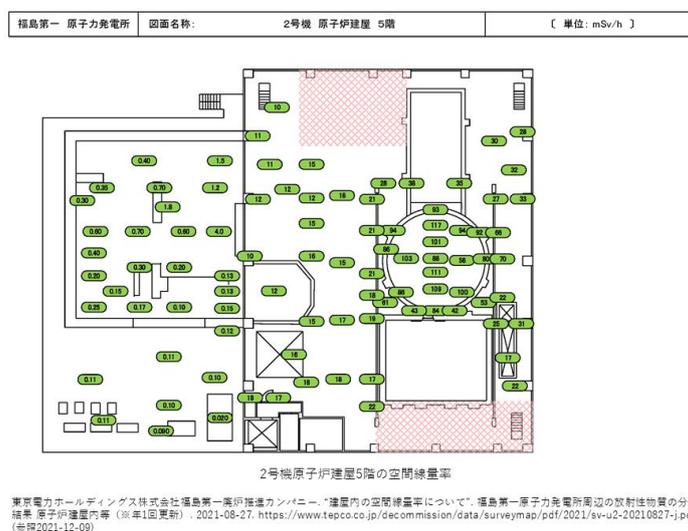
Fuel Debris Retrieval : 【Mid】

Desired state and reasons for it

- Since there are areas with extremely high radiation doses in the building and the PCV, the equipment, etc. used in these areas are required to have high radiation resistance.
- The resistance of electronic equipment to radiation is important, among other things, in the development of fuel debris retrieval equipment and devices.

Current state against ideal

- In September 2021, a high radiation level of 1.2 sievert per hour was observed near the surface of the well plug in the reactor containment vessel of Unit 2. Based on the results of the dose survey, decontamination and installation of shields on the top of the well plugs, etc. were carried out, and the dose reduction effect was confirmed again in May 2022. The installation of an opening on the south side of the operation floor is scheduled to be carried out in the future, and there is a risk that the work area will be contaminated again.
- Below are the results of air dose rates measured on the 5th floor of the reactor building of Unit 2, including the highest location (117 mSv/hour) in the reactor building among Units 1 to 6 during the year of FY2020.



Issues to be resolved

- Equipment, etc. that are required to have high radiation resistance include various sensors, semiconductor parts, cables, and cameras and so on.
- The required level of radiation resistance depends on the dose in the environment in which the equipment, etc. are used and the time of use (cumulative dose). Therefore, it is important that the

development should be carried out assuming the specific environment and the specific equipment to be used in the environment.

Relevant Issues

- FDR-101 "Understanding status of fuel debris"
- FDR-102 "Understanding status of structures inside PCV and RPV"
- FDR-103 "Understanding status of FP"
- FDR-104 "Understanding doses inside PCV and RPV"