

Decommissioning Process “Fuel Debris Retrieval”Investigation Subject **“Strategy and risk”**Issue **“Emergency measures”****Needs****1. Evaluating the impacts of the environment including mental factors on work safety**Fuel Debris Retrieval : **[Short]****Desired state and reasons for it**

- In order to ensure the safety and health of workers, it is desirable to understand the impact of the environment in which workers are placed including their mental aspects, on work safety.

Current state against ideal

- Currently, it is considered that it is managed as part of TEPCO’s work management, but the details are unknown.

Issues to be resolved

- It is necessary to identify areas where, and conditions under which, workers may make mistakes, including their mental aspects, and to take appropriate measures.
- For example, measures should be developed to prevent mistakes in monotonous repetitive work, while other measures should be developed to deal with the stress caused by highly stressful work in a failure.

2. Evaluating accidental internal exposure and providing associated health careFuel Debris Retrieval : **[Short]****Desired state and reasons for it**

- In order to properly manage the health of workers, it is desirable to identify environments where, and conditions under which, radioactive particles can be accidentally ingested, and to evaluate their effects on the human body.
- Regarding internal exposure protection, appropriate protective measures should be selected based on the target nuclide, airborne concentration, and surface density in the work area, and efforts should be made to prevent inhalation intake and physical contamination leading to internal exposure, after taking measures on facilities such as controlling the dispersion of radioactive dust, preventing contamination spread, etc..

Current state against ideal

- Research and development (development of technologies for measurement and evaluation of internal exposure doses, development of technologies for protection against internal uptake, and development of internal exposure response systems) under Government-led R&D Program on

Decommissioning, Contaminated and Treated Water Management for internal uptake protection and dose assessment during uptake, has been conducted since FY2021.

Issues to be resolved

- It is necessary to identify environments where, and conditions under which, radioactive particles can be accidentally ingested, in places that have not been assumed so far. Actions should be taken against such incidents as necessary.
- Particularly, it is necessary to develop assessment methods for internal exposure. When an internal uptake event occurs, it is necessary to properly evaluate the deposited effective dose by in vitro measurement methods (lung monitors) and bioassay methods. Therefore, it is important to select important α -nuclides for exposure assessment in advance and reflect them in the management of airborne concentrations, wearing standards of protective equipment, and calibration management of equipment.
- In addition, it is important to control surface density in the work environment and on the bodies of workers entering and exiting the work area in order to detect the spread of contamination beyond the area classification at an early stage and to prevent internal uptake by dust that has been re-suspended from free contaminants.

Relevant Issues