

Decommissioning Process “Contaminated Water Management”Investigation Subject **“Understanding current status”**Issue **“Understanding current status of underground and buildings”****Needs****1. Understanding the behavior and overall picture of groundwater****Desired state and reasons for it**

- At present, contaminated water is increasing due to groundwater flowing from the mountain side to the sea side into the reactor building, etc. and mixing with water containing radioactive materials retained in the building, etc. A multilayered contaminated water management is being implemented to control groundwater stably in accordance with the three basic policies of “removing” the contamination sources, “keeping away” the water from the contamination sources, and “not leaking” the contaminated water.
- It is desirable to understand the behaviors and the overall picture of the groundwater, because, by understanding them, it is possible to promote the multilayered contaminated water management more effectively, based on the three basic policies.

Current state against ideal

- Although the relationship between the rainfall, etc. (IN-side) and an increase in the amount of contaminated water (OUT-side) is grasped, the details of the process (including the amount of groundwater, the amount of inflow into the building, the amount not inflowing into the building, the amount of bypassing groundwater, the amount of subdrain, and the path of groundwater, etc.) are not known.

Issues to be resolved

- In order to deal with groundwater and contaminated water in a rational and systematic manner, it is necessary to understand their behaviors as a whole.
- In order to evaluate the migration of radionuclides contained in the soil around the building, it is necessary to understand the groundwater behavior around the building.
- Furthermore, in order to maintain the effectiveness of contaminated water countermeasures over the medium to long term, it is necessary to ensure the periodic inspection and renewal of each facility, including the land-side impermeable wall and sub-drain facilities.
- Countermeasures including contaminated water management during the installation of structures for fuel debris removal and dismantling of surrounding facilities are also required. In the flooding method being considered as one of the methods for fuel debris removal, groundwater countermeasures for the construction of the hull structure in the lower ground of the building are also related to on-site workability.

2. Understanding locations of inflow into the building

Desired state and reasons for it

- At present, contaminated water is increasing due to groundwater flowing from the mountain side to the sea side into the reactor building and mixing with water containing radioactive materials retained in the building, etc. It is desirable to be able to understand the location of the inflow into the building.

Current state against ideal

- Although it has been confirmed that contaminated water has been flowing into the building from the torus room, it is not easy to investigate where because of the high radiation dose around the reactor building. In particular, the specific location and amount of inflow have not been known. Even if a robot is inserted into the torus room for investigation, the location of inflow has not yet been identified.
- In addition to rainwater inflow countermeasures by facing around Units 1-4, work is under way on measures for water stoppage (filling, ground improvement, etc.) for building penetrations (such as piping) and ends of gap between buildings.

Issues to be resolved

- In order to prevent the inflow of groundwater into the building, it is necessary to identify location of the inflow points and the inflow volume and clarify the form of the inflow points and the state of the area surrounding them. (It is necessary to understand the preconditions for investigating a method of full water stoppage.)
- A long period of time is required to complete fuel debris retrieval. In addition to selecting a method to further expand the scale of fuel debris retrieval, which is currently underway, it is necessary to take a fresh overview at the current contaminated water countermeasures and investigate more stable contaminated water countermeasures and more appropriate maintenance and management of each facility, with a view to the mid- to long-term future.

Relevant Issues

- CWM-201 "Underground and buildings water level control"
- CWM-202 "Ensuring structural integrity"
- CWM-301 "Efficient and effective water treatment"
- TSR-102 "Waste strategy"
- PDR-303 "Site decontamination and dose rate reduction"
- PDR-304 "Switchover to uncontrolled areas"
- BST-001 "Remote control technology"