Phase: **Design**

Decommissioning Process **"Processing/Disposal/Environment Remediation (including Wastes containing Alpha Nuclides originating from Fuels)"**
Investigation Subject **"Environmental dynamics"**
Issue **"Impact assessment on surrounding environment"**

Needs

1. Understanding the existence form and environmental fate of radioactive materials

Processing/Disposal/Environment Remediation：【Mid】

Desired state and reasons for it

- In order to assess the impact of radioactive materials on the surrounding environment through the entire decommissioning process, it is desirable to understand the existence form and environmental dynamics of radioactive materials as a necessary basic knowledge, in addition to monitoring.
- It is desirable to understand the form of existence of radioactive materials in the waste body for each waste generated and treatment method, as well as their impact on the environment and their dynamics in the environment, with a view to their disposal.

Current state against ideal

- Monitoring and surveillance of various operations such as debris retrieval, waste storage and management status, and analysis of various samples are being conducted.
- In discharge of the treated water from the ALPS (ALPS Treated Water) to the ocean, monitoring of the sea area is being conducted to confirm the diffusion of tritium in the sea area and the transfer of radioactive materials to fish and seaweeds.

Issues to be resolved

- It is necessary to understand the existence form of radioactive material in groundwater, distribution with soil, advection／diffusion behavior in groundwater, existence form and advection／diffusion in surface layer, existence form and melting／diffusion behavior of radioactive material in seawater and seabed in harbor, and its migration behavior to the surrounding environment via ocean and atmosphere.
- After understanding the above, it is necessary to evaluate the behavior of radioactive materials at the Fukushima Daiichi NPS site and evaluate the impact on the inside and outside of the site (a combination of monitoring and analysis).
- There is a possibility that natural analogs can be used in the assessment, and the obtained data can be used for waste disposal (performance assessment).
- If any measure is judged to be necessary as a result of the impact assessment, such measure should be implemented, and, if necessary, countermeasure technologies should be developed.

Relevant Issues