Update on the status of research and development (R&D concept image)

Three topics of research and development by the partnership for this fiscal year

- 1. R&D related to the removal of fuel from the spent fuel pools
- 2. R&D related to making preparations for fuel debris removal
- 3. R&D related to processing and disposing of radioactive waste

*Individual research for 2 and 3 mentioned above will be introduced

OWork steps to fuel debris removal (1)

OMain concept image for research and development related to preparations for fuel debris removal

- •Development of remotely operated decontamination technology for use inside the reactor building (2)
- •Development of technology used to survey the inside of the PCV
- •Development of technology for surveying and repairing (waterproofing) in preparation for filling the PCV with water

(4)

(3)

OConcept image of research and development related to the processing and disposal of radioactive waste

•Research and development related to the processing and disposal of reactive waste (5)

Concept image of work steps to fuel debris removal (1)

- Removing fuel debris while it is completely submerged under water is the most certain way for reducing worker exposure
- Research and development required for removing, containing, and storing fuel debris as well as technology for surveying and making repairs in order to fill the PCV with water will be promoted
- At the same time, backup plans that did not include completely filling the PC with water will be deliberated



Concept image of main R&D related to fuel debris removal preparation (2)

Development of technology for remotely decontaminating the inside of the reactor buildings

Development of remotely operated decontamination devices that meet the contamination conditions in the field in order to improve the work environment such as by surveying and repairing leaks in the PCV in preparation for fuel debris removal

<u>Concept image of the development of decontamination devices</u> Three types of remotely operated decontamination devices are presently in development. Remotely operated decontamination devices that can be used on the top floors of the building and at high locations on the floors will be developed.





High-pressure water cleaning and decontamination device



Dry ice blasting decontamination device



Blasting/suction recovery decontamination device

Concept image of main R&D related to fuel debris removal preparation (3)

Development of technology to survey the inside of the reactor pressure containment vessel

Development of remotely operated survey methods and devices for ascertaining the conditions of fuel debris and conditions inside the reactor pressure containment vessel

<u>Concept image of survey devices and access routes</u> (Devices for gaining access through X-6 (CRD loading entry) to confirm conditions of the bottom of the pressure vessel (pedestal) are being developed. Devices for gaining access through Unit 1: X-100B, and Unit 2: X-53 to perform a preliminary survey are being developed.)







Concept image of main R&D related to fuel debris removal preparation (4)

Developing technology for making surveys and repairs in preparation for filling the PCV with water

Developing devices and methods for remotely surveying and repairing (waterproofing) leaks in the reactor pressure containment vessel

<u>Concept image of inspections of each location</u> Locations of possible damage are being identified, inspection and survey methods created/designed, and devices are being developed





R&D related to the processing and disposal of radioactive waste (5)

