

## Progress Status of “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station”

Progress made during last one month following the disclosure of “Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station” on April 17 is summarized below:

### 1. Basic policy (no change)

By bringing the reactors and spent fuel pools to a stable cooling condition and mitigating the release of radioactive materials, we will make every effort to enable evacuees to return to their homes and for all citizens to be able to secure a sound life.

### 2. Targets (no change)

- Based on the basic policy, two steps set as targets in the previous roadmap remain the same:
  - Step 1: Radiation dose is in steady decline.
  - Step 2: Release of radioactive materials is under control and radiation dose is being significantly held down.

(Note) Issues after Step 2 will be categorized as “Mid-term Issues”
- Target achievement dates tentatively set in the previous roadmap remains the same, although there will still be various uncertainties and risks:
  - Step 1: targeting mid July
  - Step 2: around 3 to 6 months (after achieving Step 1)

### 3. Summary of progress made in the last one month and planned actions (main changes)

#### 1. Added areas and issues

Please refer to the attached “Current status of Roadmap (issues/targets/major countermeasures)”

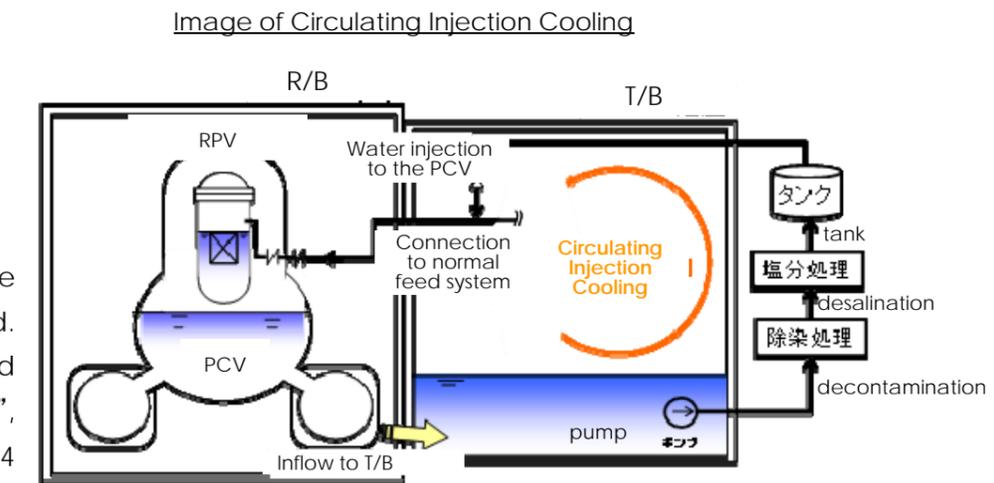
- The previous roadmap set 3 areas (“Cooling”, “Mitigation”, “Monitoring /Decontamination”) and 5 issues (“Reactors”, “Spent fuel pools”, “Accumulated water”, “Atmosphere, Soil”, “Measurement, Reduction, Announcement”)
- Reflecting progress made in the last one month, 2 areas (“Countermeasures against aftershock”, “Environment improvement”) and 3 issues (“Groundwater”, “Tsunami, reinforcement, etc”, “Life/work environment”) were newly added, resulting in 5 areas and 8 issues.
- Number of countermeasures against issues increased to 76 from 63 accordingly.

#### 2. “Issue 1. Reactors”: revision of prioritized countermeasures due to the coolant leakage

- Entered into R/B in Unit1 after improving work environment. Confirmed status of R/B and calibrated instrumentations (reactor water level, etc.)
- As a result, it turned out that the coolant leakage from PCV occurred in Unit 1 as well as in Unit 2. There will be the same risk in Unit 3.
- Accordingly, as a major countermeasures to achieve “cold shutdown” in Step 2, revision was made to prioritize “establishment of circulating injection cooling (please refer to the figure in upper right)” over flooding operation (flooding the PCV up to the top of active fuel). In circulating injection cooling, contaminated water accumulated in buildings is reused to be injected into the PCV after being processed.

#### 3. “Issue 2. SFP”: Implementation of several measures ahead of schedule

- Progress has been made relatively as scheduled. “Remote controlled operation” of “Giraffe”, etc in Unit 1, 3, and 4 were implemented ahead of schedule. Installation of heat exchanger in SFP previously scheduled in Step 2 is expected to be implemented in Step 1.



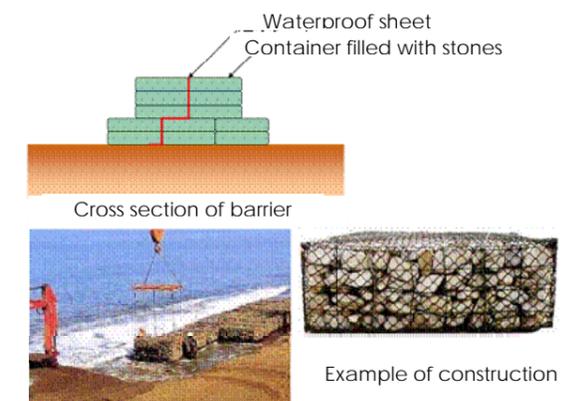
#### 4. “Issue 3. Accumulated water”: Steady increase until operation of processing facilities

- Accumulated water increases as new water is found in R/B in Unit 1. While additional storage is secured as a tentative measure, operation of processing facilities and early establishment of circulating injection cooling to control accumulated water are key items.
- Countermeasures to prevent contamination spreading into the sea are reinforced.
- Set “mitigation of groundwater contamination” as a new issue. Added new measures such as “sub-drain management” and “shielding method of underground water”

#### 5. “Issue 7. Aftershocks, Tsunami”: countermeasures are reinforced

- Potential aftershocks and tsunami are reset as issues
- Set “installment of temporary tide barriers” as a countermeasure in addition to “adding redundancy of power source”, “transfer of emergency power source to the upland”, and “adding redundancy of water injection line”
- In addition to SFP in Unit 4, reinforcement work of each unit is under consideration.

Image of Temporary Tide Barrier



#### 6. “Issue 8. Life/work environment: progress is being made step by step

- Set as new area/issue reflecting the fact that improvement of life/work environment of workers in summer season has been initiated.
- Necessary measures will be taken in addition to previously implemented “improvement of meal” and “installation of rest station”