Decommissioning and Contaminated Water management activities

Decommissioning

■ **Fuel Removal from SFP**

- Completed in Unit 4 (December, 2014)
- Debris removal is underway towards fuel removal from Unit 1-3 etc.

■ **Removal of Fuel Debris**

- Investigation into the PCV etc.

Contaminated Water management

■ **Removing the contamination source**

① Clean up contaminated water using multi-nuclide removal equipment (ALPS), etc.

② Remove highly contaminated water from seawater pipe trench

■ **Isolating groundwater from contamination sources**

③ Groundwater bypassing system

④ Pump-up from sub-drain around the reactor building

⑤ Land-side frozen soil impermeable walls

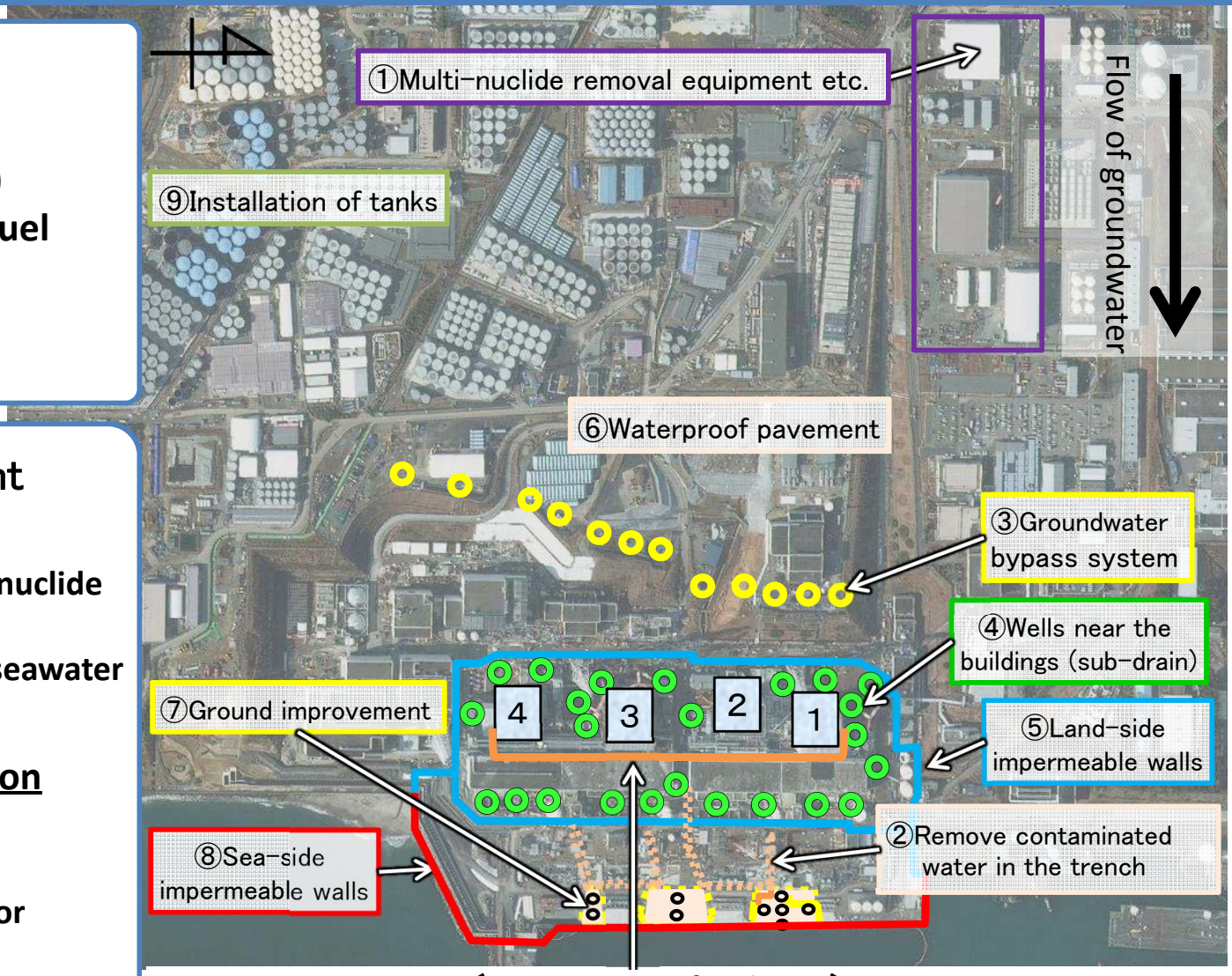
⑥ Waterproof pavement wide area facing

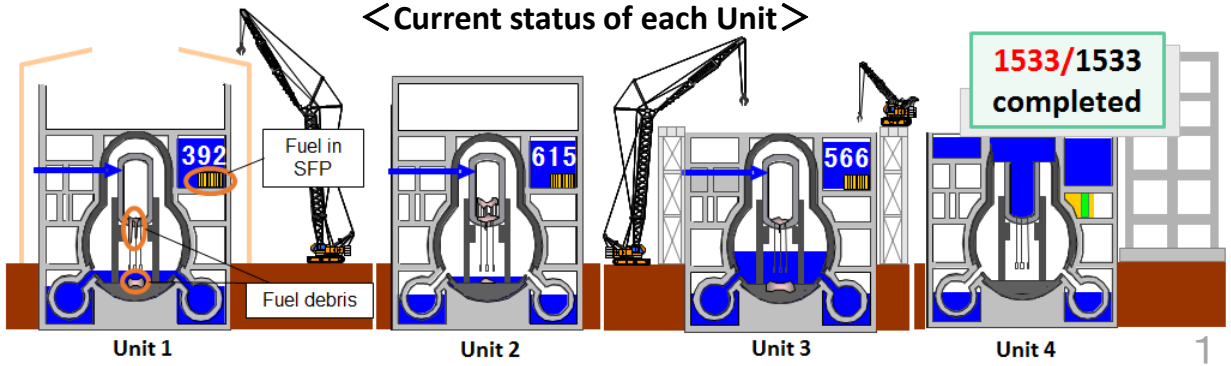
■ **Preventing leakage of contaminated water**

⑦ Ground solidification by sodium silicate

⑧ Sea-side impermeable walls

⑨ Installation of welding type tanks including replacement from flange (bolt) type





Overview of the Decommissioning Strategy

- On June 12, 2015, the Mid-and Long-Term Roadmap was revised on the Inter-Ministerial Council for Contaminated Water and Decommissioning Issues.
- While some delay is found in the schedule of fuel removal, the general framework that completion of decommissioning in 30 to 40 years is held by keeping the milestones of contaminated water management, fuel debris removal and waste management.

December, 2011 | November, 2013 | December, 2021 | 30–40 years later

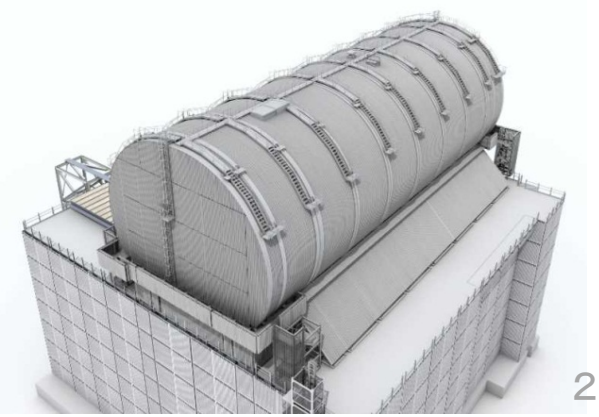
Measures for Stabilization	Phase 1	Phase 2	Phase 3
	Until start of fuel removal from SFP (2 years)	Until start of fuel debris removal (10 years)	Until completion of decommissioning (30–40 years)

Cold Shutdown
- Cold shutdown condition
- Release of radioactive materials is greatly controlled

【Unit 4 Spent Fuel Pool (SFP)】

Fuel removal from Unit 4 SFP commenced on November 18, 2013. (Completed on December 22, 2014)

Fuel removal from Unit 3 to start in FY 2017



【Image of the Unit 3 Cover for Fuel Removal】

Main point of the Mid-and-Long-Term Roadmap (Revised on June 12, 2015)

1. Give priority to Risk Reduction

Focus on Speed → Focus on Risk Reduction

Give priority sequence to actions in order to certainly reduce risks in a long-term, not only to focus on speed

- Contaminated water management, Fuel removal from SFP → Deal with as soon as possible
- Fuel debris removal → Deal with safely, surely and carefully with adequate preparation
- Solid radioactive wastes, Secondary waste generated from contaminated water treatment → Deal with in a long-term

2. Clarifying Milestones

→ Clarifying Milestones over next few years, taking stakeholder's opinions into account

3. Strengthen good relationship of trust with the local stakeholders by maximizing disclosure, etc.

Establishment of Fukushima Council for stakeholder communication (February, 2014) → Further enhanced communication

(International Forum on Strategy for the Decommissioning of F1, etc.)

4. Further reduction in workers' exposure dose, Enhancement of Management System for Safety and Health for Workers

5. Reinforcement of Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF), as the Control Tower of technical strategy for decommissioning

Foundation of NDF (August, 2014) → Total management of R&D, Association with wisdom from all over the world

New Milestones

■ Clarify the short-term targets (green) for higher priority measures, while keeping the general framework (blue)

Overall	Completion of decommissioning		30 – 40 years
Contaminated water management	Completion of treatment of stagnant water in buildings	(Minimizing the amount of increase of contaminated water and water inside the building, except cooling water)	**2020**
Removing	Additional effective dose rate at the site boundary < 1 mSv/y	(Achieving the risk reduction goal of exposure dose)	FY2015
	Start of preparation to determine long-term management of ALPS-treated water		First half of FY2016
Isolating	Control inflow of groundwater into the buildings < 100 m3/day	(Huge decrease in the amount of contaminated water increase)	FY2016
Preventing leakage	Storage of all the water generated by treatment of highly contaminated water in welded-joint tanks	(Huge reduction in risk of leakage from tanks)	early FY2016
Stagnant water treatment	Reduction of radioactive materials in stagnant water in the buildings by half	(Reduction in risk of leakage from buildings)	FY2018
Removal of spent fuel	Decision on methods for the treatment and storage of spent fuel		**around 2020**
	Start of spent fuel removal at Unit-1	Second half of FY2017 ⇨	FY2020
	Start of spent fuel removal at Unit-2	First half of FY2020 ⇨	FY2020
	Start of spent fuel removal at Unit-3	First half of FY2015 ⇨	FY2017
Removal of fuel debris	Policy on fuel debris removal from each Unit		around 2 years from now
	Decision on the method for fuel debris removal from the 1st implementing Unit		First half of FY2018
	Start of fuel debris removal from the 1st implementing Unit		2021
Radioactive waste	Establishment of basic concept of processing/disposal for solid radioactive wastes		FY2017

NEW

※The changes in milestones for SF removal are mainly due to "Measures for Safety and Securing more", including measures for preventing dust dispersion or reduction of workers' exposure dose, etc. Best efforts to avoid delay due to "troubles" or "delay in decision" should be made hereafter.

For more information

経済産業省
Ministry of Economy, Trade and Industry

http://www.meti.go.jp/english/index.html

Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station Units 1-4

What's New | Contaminated Water | Mid-and-Long-Term Roadmap | Progress Status Reports (monthly) | Other Information | Related Links

What's New

- At the 59th IAEA General Conference on September 14-18, 2015, the movie titled "Fukushima Today -Towards new horizons-" was shown. In this movie, Fukushima Today is presented from a variety of angles, including the current status of the Nuclear Power Station, various measures towards decommissioning, progress of decontamination work, and food inspection. (September 16, 2015)
- Analysis results regarding the water quality of the groundwater pumped up by sub-drain and purified at Fukushima Daiichi Nuclear Pow Station(PDF:141KB) (September 2, 2015)