

# **Revision of “the Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station”**

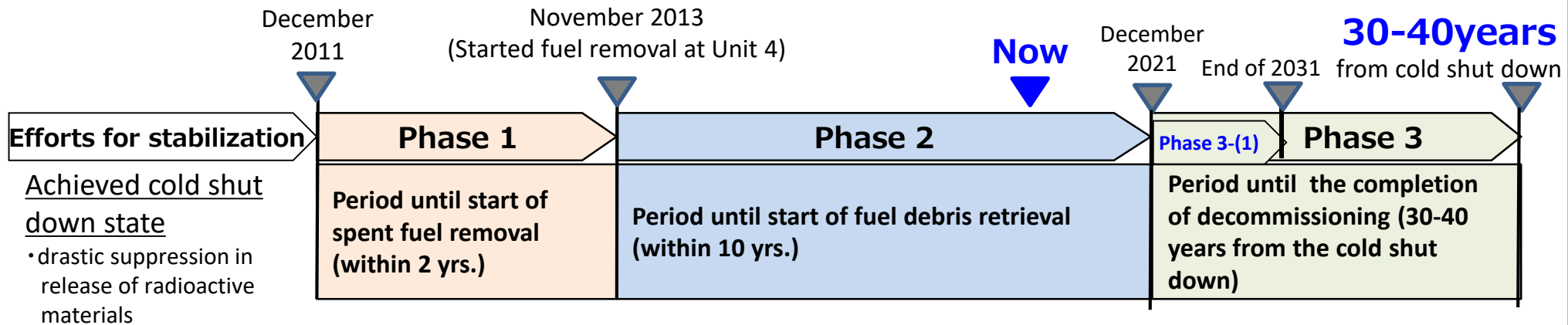
December 2019

Secretariat of the Team for Countermeasures for  
Decommissioning and Contaminated Water  
Management

# 1. The Mid-and-Long-Term Roadmap

- Decommissioning of Fukushima Daiichi NPS will be done by TEPCO in its responsibility.
- The decommissioning is an **unprecedented work with technical challenges**. **The Government of Japan has been taking initiative based on the Mid-and-Long-Term Roadmap**, with the target of the completion of decommissioning in 30-40 years in a safe and steady manner.

## Time frame for Fukushima Daiichi Decommissioning



## Role of the Government of Japan

### • GOJ sets the Roadmap

- The Inter-Ministerial Council for Contaminated Water and Decommissioning Issues has set out the Roadmaps. (Chairman: **Chief cabinet secretary**, First version: Dec. 2011)
- Revised for **five times** to date (Revised in July 2012, June 2013, June 2015, Sept. 2017, Dec. 2019)

- Based on the “Roadmap”, mid-and long-term measures has been undertaken while **giving top priority to the safety and keeping the attitude to value the risk reduction.**

## 2. Key points of the revised “the Mid-and-Long-Term Roadmap”

- **Setting out a basic principle of “coexistence of reconstruction and decommissioning”,** while there has been gradual progress of **residents’ return** and **reconstruction efforts** in surrounding area.  
(giving priority on early risk reduction and ensuring safety)
  - **Coexist with local communities.**
  - **“Optimize the whole decommissioning tasks”, by reviewing the work process of 10 years.**
- **Total period of decommissioning is unchanged: “within 30-40 years”**

### (1) Fuel debris retrieval

- ➔ **Determine first implementing Unit and the method for fuel debris retrieval.**  
**Start trial retrieval at Unit 2 within 2021,** by partial submersion method and side access  
The scale of the retrieval will be gradually enlarged.

### (2) Fuel removal from pool

- ➔ **Change in the methods to suppress the dust dispersion at Unit 1 and 2**  
**Postpone** fuel removal **for 4-5 years at Unit 1,** and **for 1-3 years at Unit 2**  
**Aim at the completion of fuel removal from all Units 1-6, within 2031**

### (3) Contaminated water management

- The volume of contaminated water generated has been significantly suppressed.  
(540m<sup>3</sup>/day (May 2014) → 170m<sup>3</sup>/day (average of FY2018))

- ➔ **Keep current target of reducing** the contaminated water generation **to 150m<sup>3</sup>/d within 2020.**  
**Set new target of reducing** the contaminated water generation **to 100m<sup>3</sup>/d within 2025.**

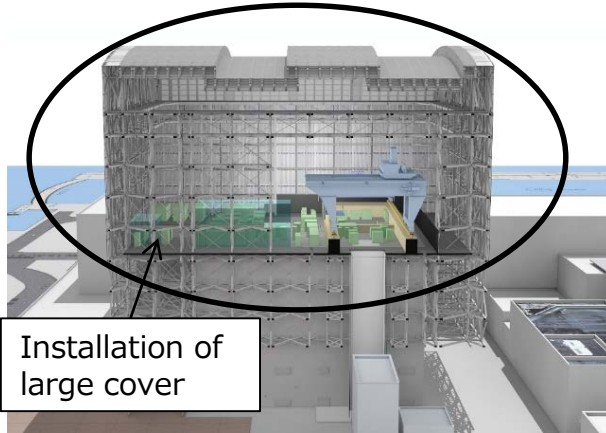
\* Handling of ALPS treated water will be continuously discussed in a comprehensive manner

# 3. Essence of fuel removal from pool and fuel debris retrieval

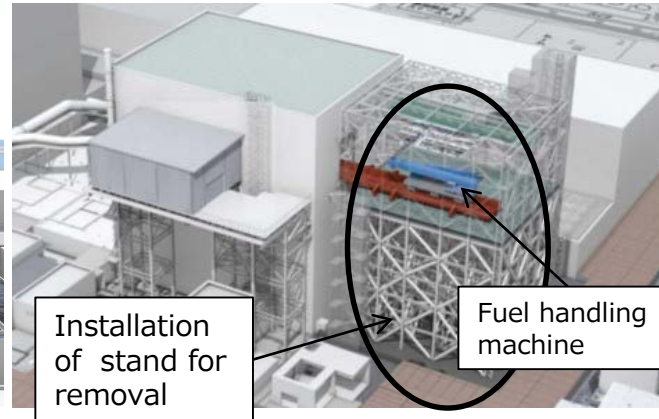
## Fuel removal from pools

(Adoption of method for suppressing dust scattering)

Unit 1



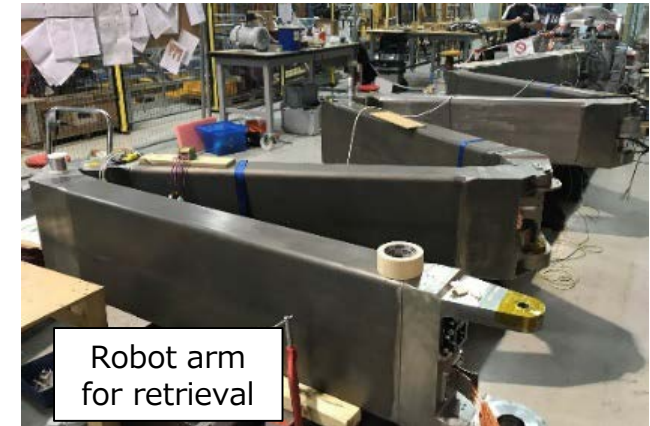
Unit 2



- Review the method and starting time of fuel removal in order to prioritize safety such as suppression of dust scattering.
- Aim the completion of fuel removal from all Units, including Unit 5 and 6, within 2031.

## Fuel debris retrieval

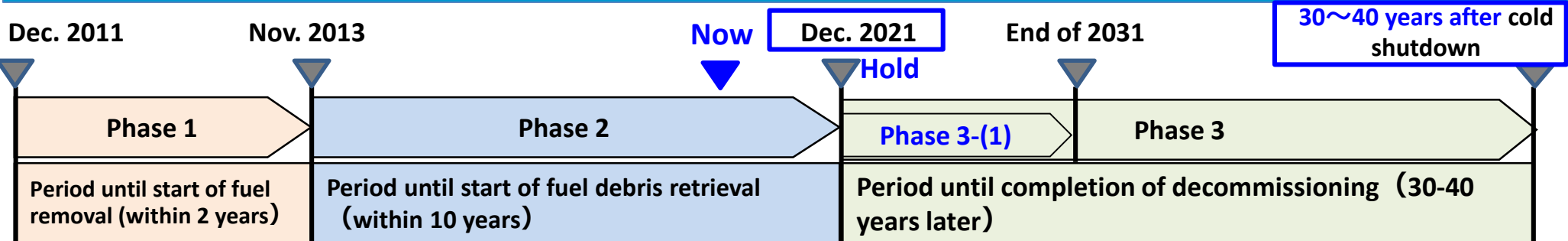
(Determination of method for retrieval from Unit 2\*)



- **Robot arm** has been developed for retrieval work.
- Present detailed method for retrieval
- Retrieval will be started in 2021, carefully, and will gradually expand its scale.

\* first implementing Unit

# 4. Major milestones of Mid-and-Long-Term Roadmap (Dec. 2019)



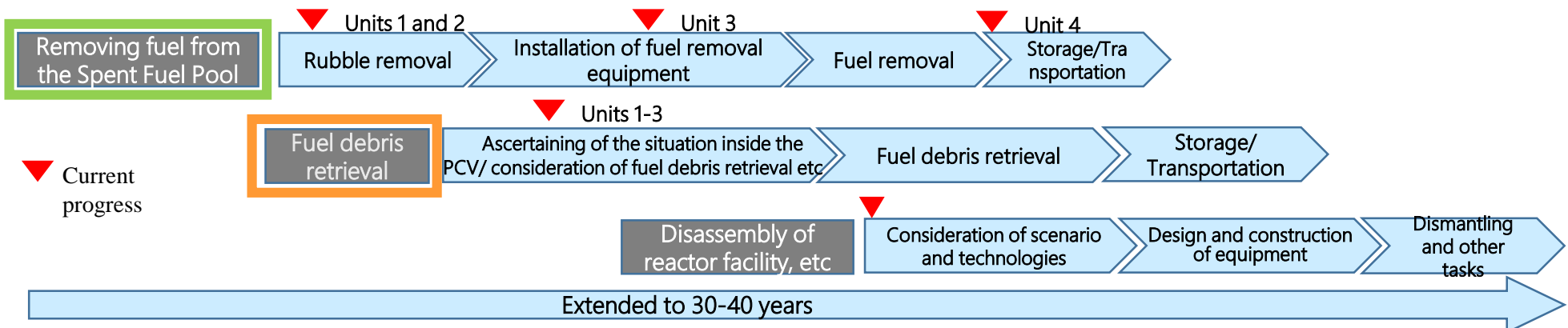
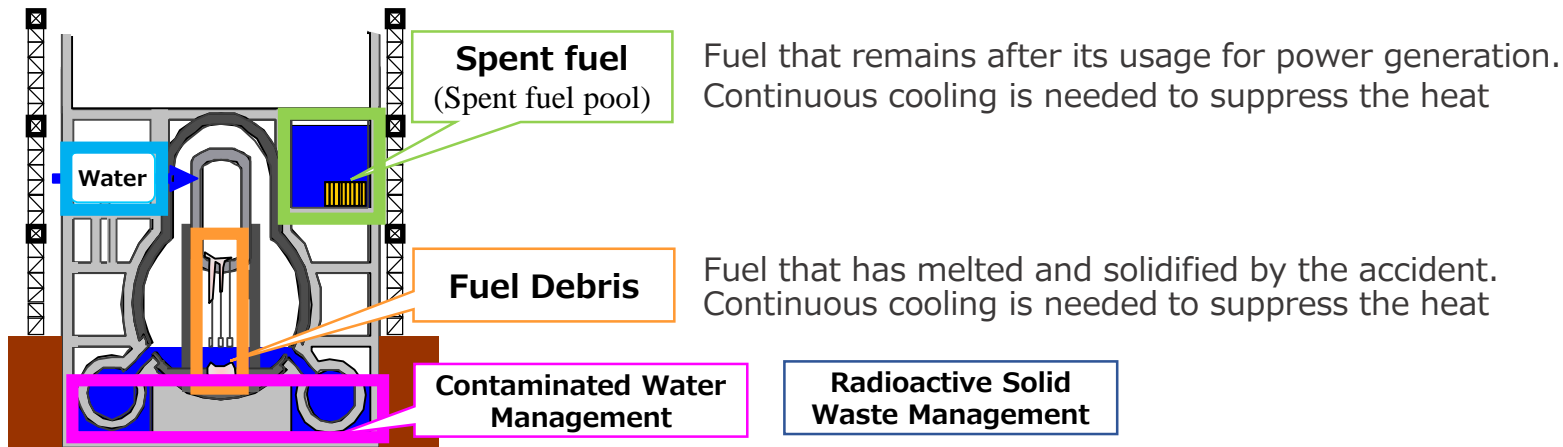
## Major milestones

Roadmap (Sept. 2017)      Revised Roadmap

<b>Contaminated water management</b>	Reduce to about 150 m <sup>3</sup> /day <u>Reduce to about 100m<sup>3</sup>/day or less</u>	} Further reduction of generation	Within 2020 —	Within 2020 <u>Within 2025</u>	<u>NEW</u>
Stagnant water removal / treatment	Complete stagnant water removal / treatment in buildings* • Excluding the reactor buildings of Units 1-3, Process Main Buildings, and High Temperature Incineration building. <u>Reduce the amount of stagnant water in reactor buildings to about a half of that in the end of 2020</u>		Within 2020  —	Within 2020(*)  <u>FY2022 - 2024</u>	  <u>NEW</u>
<b>Fuel removal</b>	<u>Complete of fuel removal from Unit 1-6</u> <u>Complete of installation of the large cover at Unit 1</u>	} Methods have changed to ensure safety and prevent dust scattering	— —	<u>Within 2031</u> <u>Around FY2023</u>	<u>NEW</u> <u>NEW</u>
	Start fuel removal from Unit 1  Start fuel removal from Unit 2		Around FY2023  Around FY2023	<u>FY2027 – 2028</u> <u>FY2024 - 2026</u>	<u>REVISED</u> <u>REVISED</u>
<b>Fuel debris retrieval</b>	Start fuel debris retrieval from the first Unit <u>(Start from Unit 2, expanding the scale gradually)</u>		Within 2021	Within 2021	
<b>Waste management</b>	Technical prospects concerning the processing/disposal policies and their safety		Around FY2021	Around FY2021	
	<u>Eliminating temporary storage areas outside for rubble and other waste</u>		—	<u>Within FY2028</u>	<u>NEW</u>

# [Ref.1] Decommissioning of TEPCO Fukushima Daiichi NPS (FDNPS)

- ◇ **Fukushima Daiichi Decommissioning is a continuous risk reduction activity** to protect the people and the environment from the risks associated with radioactive substances by:
  - ✓ Removing spent fuel and fuel debris from the Reactor Building
  - ✓ Reducing the risks associated with contaminated water and radioactive waste
- ◇ **Safe and steady decommissioning is a prerequisite for reconstruction of Fukushima**



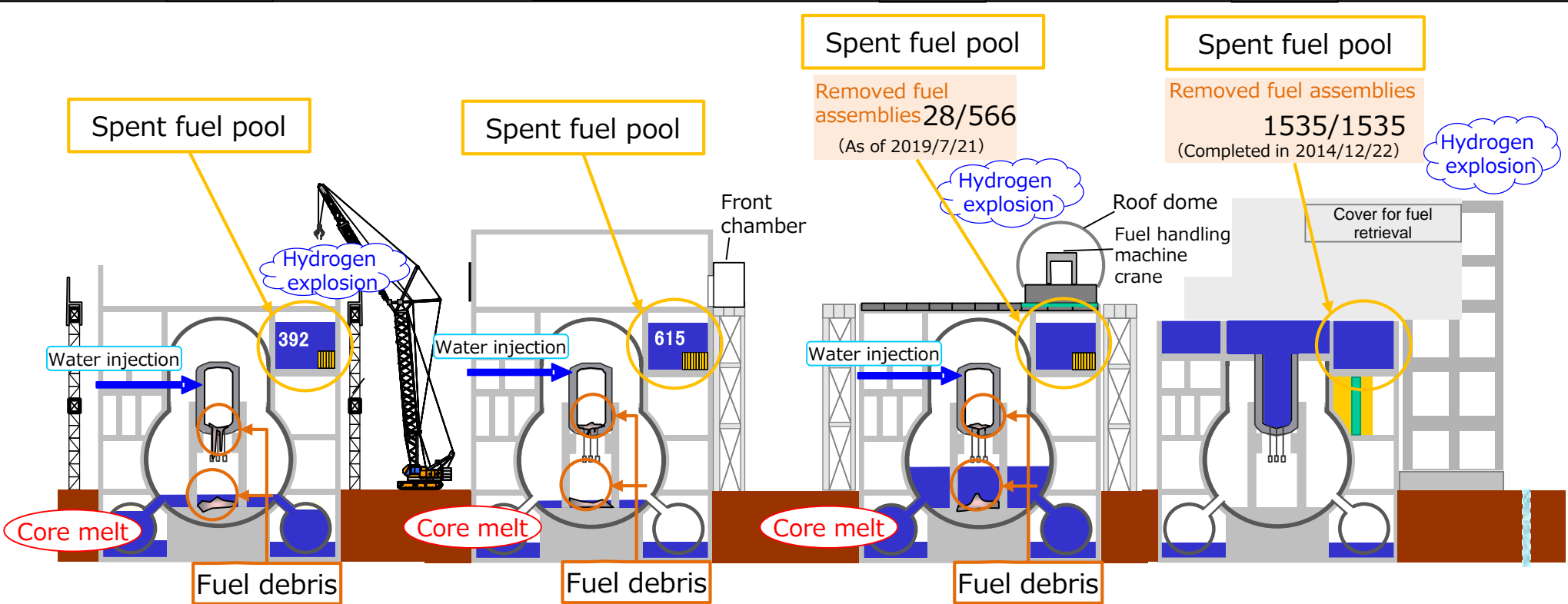
# [Ref. 2] Current status of Unit 1-4 of Fukushima Daiichi NPS

Unit 1

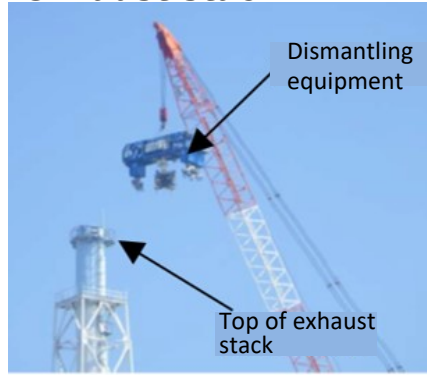
Unit 2

Unit 3

Unit 4

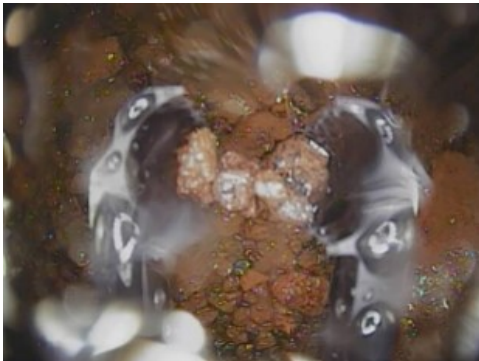


<Dismantling of Unit 1/2 exhaust stack >



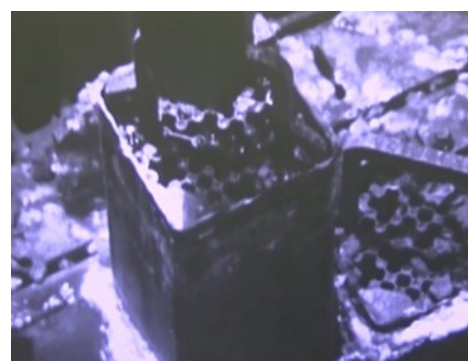
**Local company** joins as a prime contractor. [Aug. 2019]

<Fuel debris retrieval >



Confirmed that the deposit likely to be the fuel debris was able to be gripped and moved. (Unit 2) [Feb. 2019]

<Fuel removal >



Started fuel removal from the spent fuel pool by remote control, for the first time from a nuclear reactor with core melt (Unit 3) [Apr. 2019]