

Revised version

Operation to Remove Spent Fuel from Unit 4 Spent Fuel Pool at Fukushima Daiichi NPS

November 13, 2013
Tokyo Electric Power Company

1. Steps toward operation to remove spent fuel from Unit 4 spent fuel pool

The current progress status of preparatory work, such as checking and examination by internal and external concerned parties, toward the operation to remove spent fuel from Unit 4 spent fuel pool at Fukushima Daiichi NPS is as follows.

■ Progress status of checking that should be given by external concerned parties

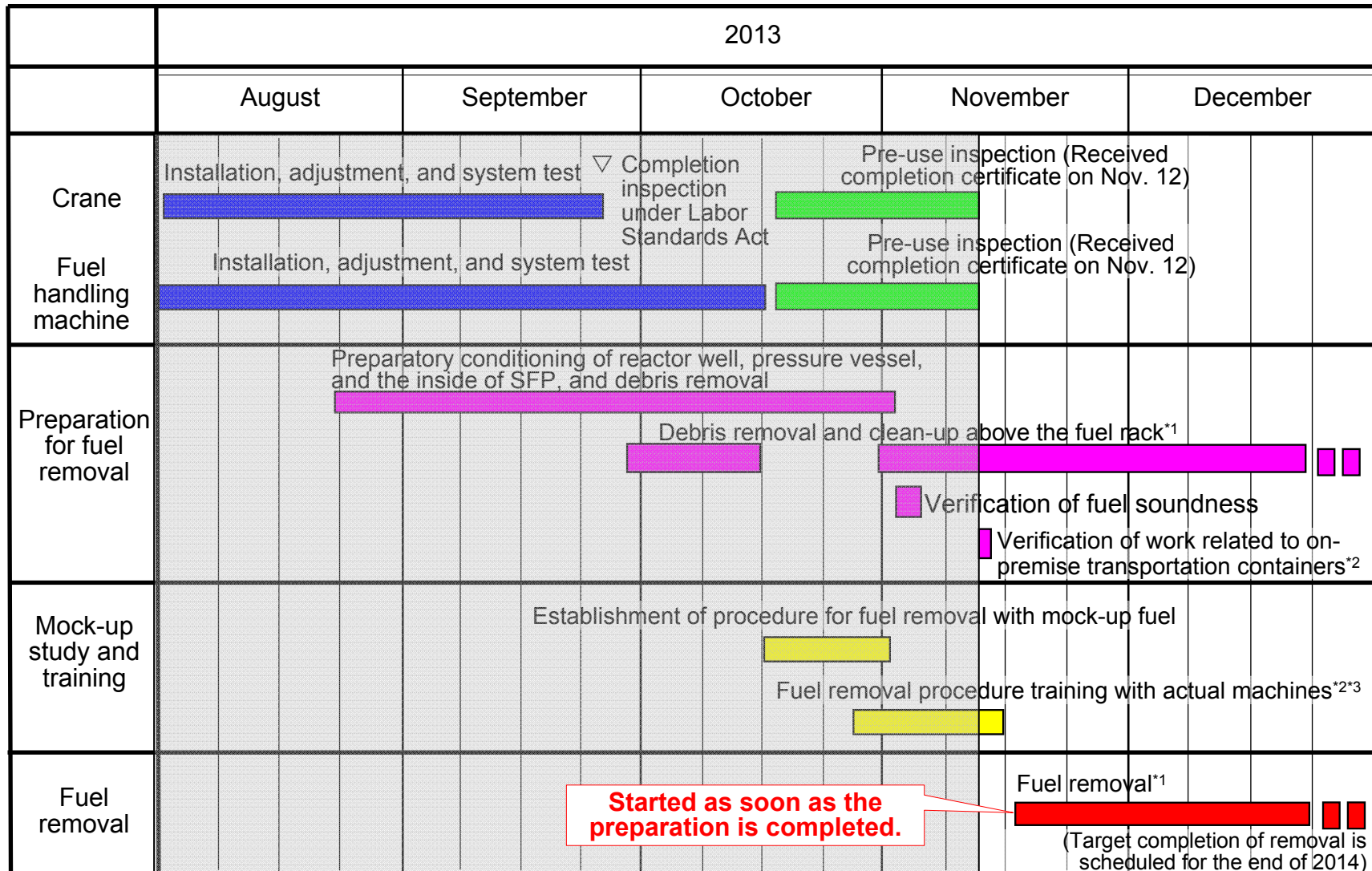
- **On November 12, a completion certificate for the pre-use inspection was provided.** [by the Nuclear Regulation Authority]
- **On November 12, the implementation plan (for actions related to the technical specifications and radiation control) was approved.** [by the Nuclear Regulation Authority]
- **Actions were taken in response to comments provided as a result of a third party review.** [Comments from IEG were received by a responsible section of TEPCO on November 5]
- **On November 13, a safety inspection was started.** [by the Nuclear Regulation Authority]
- **On November 14 and 15, a site review was conducted by a third party (IEG).**

■ Work progress status in TEPCO

- **Review was conducted by the Nuclear Safety Oversight Office**
- **Review* was conducted by the Nuclear Reform Monitoring Committee**
< Specific related actions >
- **A cask** was transferred to the Unit 4 Operating Floor from the common pool.** [on November 13 (today)] ** Containers used to transfer fuel within the power station (NFT-22B)
- **Confirmation of mechanical movements of lifting up and down the casks using the actual machine (and crane operations) was conducted.** [on November 13 (today)]
- **Final confirmation of the fuel handling machine using mock-up fuel will be conducted.** [scheduled to start on November 13]*
- **Emergency evacuation drills were started.** [First conducted on October 25, and will be conducted at the final confirmation of the cask-transferring operation]

After conducting the above actions, we will proceed with fuel removal with “first priority given to safety”, not to achievement of the schedule.

2. Schedule



*1: Fuel removal conducted in the daytime, and debris removal at night

*2: Evacuation drills conducted at the same time

*3: Implemented for every new worker

Vacant on-premise transportation container (NFT-22B)

On November 13 (today), one of the two on-premise transportation containers that will be actually used in the fuel removal operation was transferred to the Unit 4 Reactor Building from the common pool.



On-premise transportation containers (NFT-22B) ①

Provided by Tokyo Electric Power Company
Taken on November 13, 2013



On-premise transportation containers (NFT-22B) ②

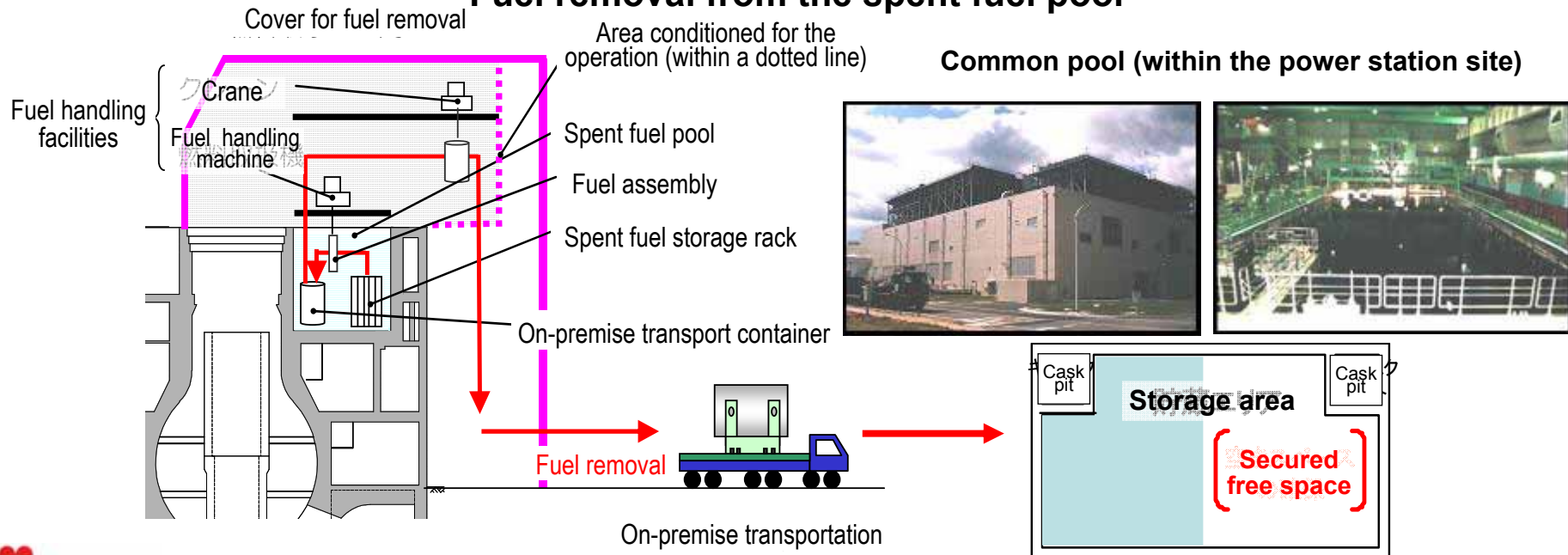
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[Note] Photos include information concerning physical protection, etc., therefore the photos are partly corrected.

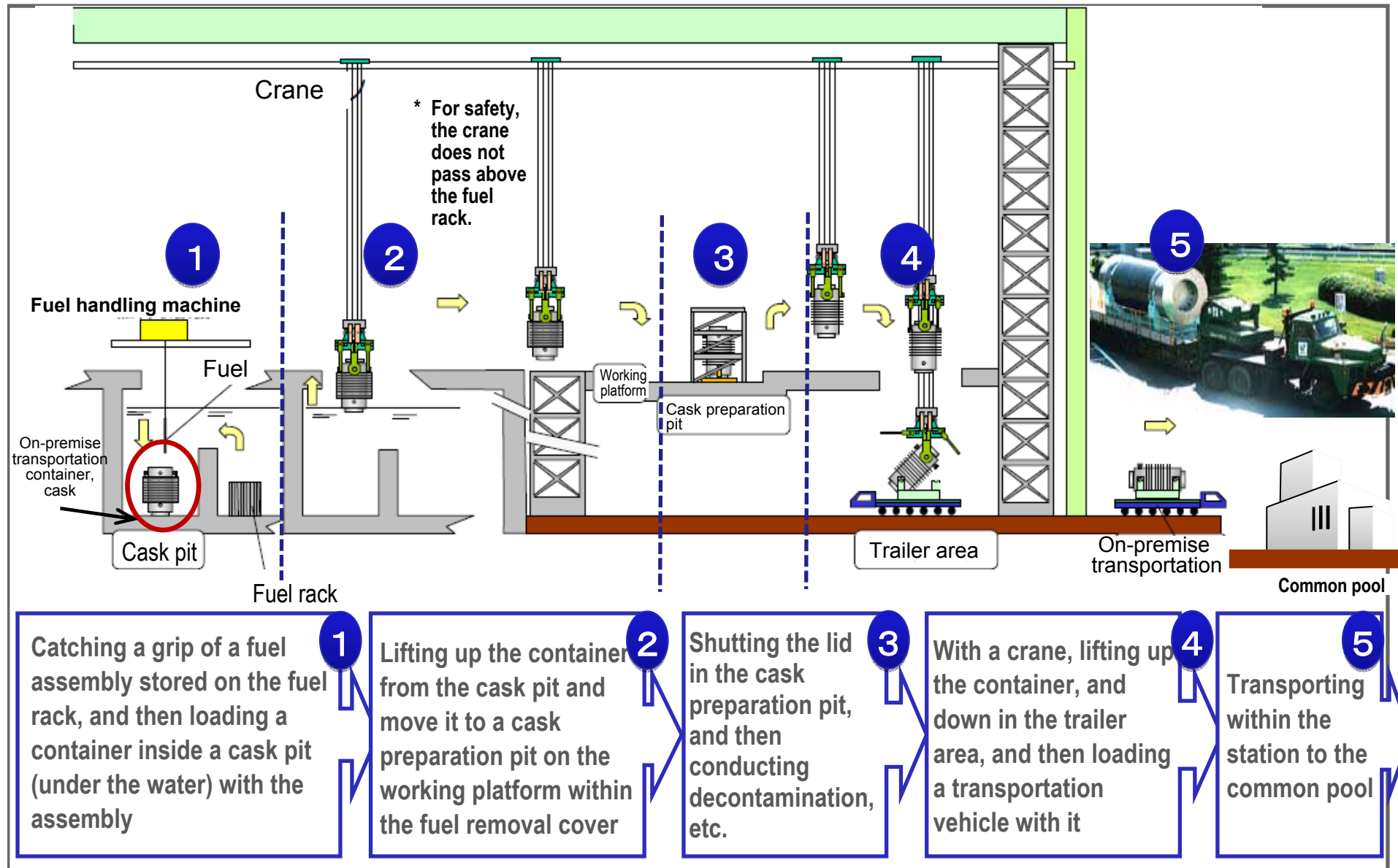
(Reference) Outline of fuel removal from the spent fuel pool

- Transferring spent fuel in the spent fuel pool at Unit 4 (1533 assemblies*) to the common pool within the power station site
 - Starting fuel removal in November 2013 with target completion of removal being scheduled for around the end of 2014
- ① Operating a fuel handling machine, we will transfer fuel stored in the fuel rack inside the spent fuel pool to the on-premise transportation container (cask), one by one under the water.
 - ② Operating a crane, we will lift up the cask in the spent fuel pool.
 - ③ On the floor as high as the operating floor, we will shut the lid of the cask and conduct decontamination.
 - ④ Operating the crane, we will bring the cask down to the ground, and load the trailer with the cask.
 - ⑤ Operating the trailer, we will transport the cask to the common pool.
- *1331 spent fuel assemblies and 202 unirradiated fuel (new fuel) assemblies

Fuel removal from the spent fuel pool



(Reference) Steps of fuel removal from the spent fuel pool



(Reference) Measures to prevent falling of fuel and casks in the operation

The fuel handling machine and the crane used for fuel removal have the same designs as those we used before the earthquake, and these machines have structures well qualified for handling the fuel assemblies and the cask safely and reliably, in case of the following accidents.

Case	Cause	Measures to prevent falling
Falling down of fuel	Breakdown/ misoperation of fuel handling machine	<ul style="list-style-type: none">• Hoist remains under control with its electromagnetic brake structure in case of no power supply.• Fuel grip instrument does not open its hook even when air supply is lost.• Fuel grip instrument has a mechanical interlock.• Fuel grip instrument has a double wire rope structure.• Handling of fuel can be monitored via a water-resist camera
Falling down of cask	Breakdown/ misoperation of crane	<ul style="list-style-type: none">• Winding device remains under control with its electric oil pressure booster brake.• The crane has doubled- 1) wire ropes, 2) brakes, and 3) hoisting tools.• The hook has anti-release structure.• Inspection for the crane and the hoisting tool will be conducted before commencing work• Secure fixation will be confirmed before lifting up

Ends