A robot will soon try to remove melted nuclear fuel from Japan's destroyed Fukushima reactor

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Tokyo Electric Power Company Holdings, also known as TEPCO, the operator of Japan's wrecked Fukushima Daiichi nuclear power plant, reveals a robot to be used to retrieve debris at the power plant in Kobe, western Japan, Tuesday, May 28, 2024. Credit: Kyodo News via AP

The operator of Japan's destroyed Fukushima Daiichi nuclear power plant demonstrated Tuesday how a remote-controlled robot would retrieve tiny bits of melted fuel debris from one of three damaged reactors later this year for the first time since the 2011 meltdown.

Tokyo Electric Power Company Holdings plans to deploy a "telesco-style" extendable pipe robot into Fukushima Daiichi No. 2 reactor to test the removal of debris from its primary containment vessel by October.

That work is more than two years behind schedule. The removal of melted fuel was supposed to begin in late 2021 but has been plagued with delays, underscoring the difficulty of recovering from the magnitude 9.0 quake and tsunami in 2011.

During the demonstration at the Mitsubishi Heavy Industries' shipyard in Kobe, western Japan, where the robot has been developed, a device equipped with tongs slowly descended from the telescopic pipe to a heap of gravel and picked up a granule.

TEPCO plans to remove less than 3 grams (0.1 ounce) of debris in the test at the Fukushima plant.

"We believe the upcoming test removal of fuel debris from Unit 2 is an extremely important step to steadily carry out future decommissioning work," said Yusuke Nakagawa, a TEPCO group manager for the fuel debris retrieval program. "It is important to proceed with the test removal safely and steadily."

About 880 tons of highly radioactive melted nuclear fuel remain inside the three damaged reactors. Critics say the 30- to 40-year cleanup target set by the government and TEPCO for Fukushima Daiichi is overly optimistic. The damage in each reactor is different, and plans must accommodate their conditions.

Better understanding the melted fuel debris from inside the reactors is key to their decommissioning. TEPCO deployed four mini drones into the No. 1 reactor's primary containment vessel earlier this year to capture images from the areas where robots had not reached.