

New images from inside Fukushima reactor spark safety worry

April 4 2023, by Mari Yamaguchi



A spokesperson of the Tokyo Electric Power Company Holdings (TEPCO) shows photos captured by a robotic probe inside one of the three melted reactors at the tsunami-wrecked Fukushima nuclear power plant, during a news conference at the TEPCO headquarters in Tokyo, Tuesday, April 4, 2023. Images captured by a robotic probe inside one of the three melted reactors at the tsunami-wrecked Fukushima nuclear power plant showed exposed steel bars in the main supporting structure and its thick external concrete wall largely missing near its bottom, triggering concerns about its earthquake resistance in case of

another major disaster. Credit: AP Photo/Shuji Kajiyama

Images captured by a robotic probe inside one of the three melted reactors at Japan's wrecked [Fukushima nuclear power plant](#) showed exposed steel bars in the main supporting structure and parts of its thick external concrete wall missing, triggering concerns about its earthquake resistance in case of another major disaster.

The plant's operator, [Tokyo Electric Power Company Holdings](#), has been sending robotic probes inside the Unit 1 primary containment chamber since last year. The new findings released Tuesday were from the latest probe conducted at the end of March.

An underwater remotely operated vehicle named ROV-A2 was sent inside the Unit 1 pedestal, a supporting structure right under the core. It came back with images seen for the first time since an earthquake and tsunami crippled the plant 12 years ago. The area inside the pedestal is where traces of the melted fuel can most likely be found.

An approximately five-minute video—part of 39-hour-long images captured by the robot—showed that the 120-centimeter (3.9-foot) -thick concrete exterior of the pedestal was significantly damaged near its bottom, exposing the steel reinforcement inside.

TEPCO spokesperson Keisuke Matsuo told reporters Tuesday that the steel reinforcement is largely intact but the company plans to further analyze data and images over the next couple of months to find out if and how the reactor's earthquake resistance can be improved.



A spokesperson of the Tokyo Electric Power Company Holdings (TEPCO) shows photos captured by a robotic probe inside one of the three melted reactors at the tsunami-wrecked Fukushima nuclear power plant, during a news conference at the TEPCO headquarters in Tokyo, Tuesday, April 4, 2023. Those robotic images showed exposed steel bars in the main supporting structure and its thick external concrete wall largely missing near its bottom, triggering concerns about its earthquake resistance in case of another major disaster. Credit: AP Photo/Shuji Kajiyama

The images of the exposed steel reinforcement have triggered concerns about the reactor's safety.

About 880 tons of highly radioactive melted nuclear fuel remain inside the three reactors. Robotic probes have provided some information, but

the status of the melted debris is still largely unknown. The amount is about 10 times the damaged fuel that was removed in the cleanup of the Three Mile Island nuclear plant in the United States after its 1979 partial core meltdown.

Fukushima Gov. Masao Uchibori urged TEPCO to "swiftly evaluate levels of earthquake resistance and provide information in a way prefectural residents can easily understand and relieve concern of the residents and people around the country."

The video taken by the robot also showed equipment that slipped down as well as other types of debris, possibly nuclear fuel that fell from the core and hardened, piling up as high as 40-50 centimeters (1.3-1.6 feet) from the bottom of the primary containment chamber, Matsuo said. The pile is lower than the mounds seen in images taken in previous internal probes at two other reactors, suggesting that the meltdowns in each reactor may have progressed differently, company officials said.



This aerial photo shows the Fukushima Daiichi nuclear power plant in Okuma town, Fukushima prefecture, north of Tokyo, on March 17, 2022. Images captured by a robotic probe inside one of the three melted reactors at the tsunami-wrecked Fukushima nuclear power plant were revealed at a news conference at the plant's operator, Tokyo Electric Power Company Holdings, Tuesday, April 4, 2023, showing exposed steel bars in the main supporting structure and its thick external concrete wall largely missing near its bottom, triggering concerns about its earthquake resistance in case of another major disaster. Credit: Shohei Miyano/Kyodo News via AP, File

Matsuo said the data collected from the latest probe will help experts come up with methods of removing the debris and analyze the 2011 meltdowns. TEPCO also plans to use the data to create a three-dimensional map of melted fuel and debris details, which would take

about a year.

Based on data collected from earlier probes and simulations, experts have said most of the melted fuel inside Unit 1 fell to the bottom of the primary containment chamber, but some might have even fallen through into the concrete foundation—a situation that makes the already daunting task of decommissioning extremely difficult.

Trial removal of melted debris is expected to begin in Unit 2 later this year after a nearly two-year delay. Spent fuel removal from the Unit 1 reactor's cooling pool is to start in 2027 after a 10-year delay. Once all the spent fuel is removed from the pools, the focus is to turn in 2031 to taking melted debris out of the reactors.

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