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Frantic clean-up at Fukushima plant



Delicate task: A worker in hazmat suit walking at the Fukushima Daiichi nuclear power plant in Okuma. — AP

Workers on edge over high radiation levels

Japan THE Fukushima Daiichi nuclear power plant's radiation levels have significantly dropped since the cataclysmic meltdown 14 years ago, with workers walking around in many areas wearing only surgical masks and regular clothes.

It's a different story for those who enter the reactor buildings, including the three damaged in the 2011 earthquake and tsunami.

They must use maximum protection: Full face masks with filters, multi-layered gloves and socks, shoe covers, hooded hazmat coveralls and a waterproof jacket, and a helmet.

As workers remove melted fuel debris from the reactors in a monumental nuclear clean-up effort that could take more than a century, they are facing both huge amounts of psychological stress and dangerous levels of radiation.

A remote-controlled extendable robot with a tong had several mishaps before returning in November with a tiny piece of melted fuel from inside the damaged No. 2 reactor.

That first successful test run is a crucial step in what will be a daunting, decades-long decommissioning that must deal with at least 880 tonnes of melted nuclear fuel that has mixed with broken parts of internal structures and other debris inside the three ruined reactors.

Akira Ono, chief decommissioning officer at the Tokyo Electric

Power Company (Tepco) Holdings, which manages the plant, says even the tiny sample gives officials a lot of information about the melted fuel.

In late August, small groups took turns doing their work helping the robot in 15- to 30-minute shifts to minimise radiation exposure. They have a remotely controlled robot, but it has to be manually pushed in and out.

"Working under high levels of radiation (during a short) time limit made us feel nervous and rushed," said Yasunobu Yokokawa, a team leader for the mission.

"It was a difficult assignment." Full-face masks reduced visibility and made breathing difficult, an extra waterproof jacket made it sweaty and hard to move, and triple-layered gloves made their fingers clumsy, Yokokawa said.

The workers' highest individual radiation dose was more than the overall average but still far below anything approaching a 100-millisievert five-year dose limit.

Even so, a growing number of workers are concerned about safety and radiation at the plant, said Ono, the decommissioning chief, citing an annual survey of about 5,500 workers.

Yokokawa and a plant colleague, Hiroshi Ide, helped in the 2011 emergency and work as team leaders today.

They say they want to make the job safer as workers face high radiation in parts of the plant.

On the top floor of the No. 2 reactor, workers are setting up equipment to remove spent fuel

units from the cooling pool. That's set to begin within two to three years.

At the No. 1 reactor, workers are putting up a giant roof to contain radioactive dust from decontamination work on the top floor ahead of the removal of spent fuel.

Workers are also removing treated radioactive wastewater. They recently started dismantling the emptied water tanks to make room to build facilities needed for the research and storage of melted fuel debris.

After a series of small missions by robots to gather samples, experts will determine a larger-scale method for removing melted fuel, first at the No. 3 reactor.

Experts say the huge challenges of decommissioning the plant are just beginning. There are estimations that the work could take more than a century.

The government and Tepco have an initial completion target of 2051, but the retrieval of melted fuel debris is already three years behind, and many big issues remain undecided.

Ide, whose home in Namie town, northwest of the plant, is in a no-go zone because of nuclear contamination, still has to put on a hazmat suit, even for brief visits home.

"As a Fukushima citizen, I would like to make sure the decommissioning work is done properly so that people can return home without worries," he said. — AP

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