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Japan nuclear plant gets help from US robots

Obama administration sends shipment of robots to help regain control over stricken Fukushima nuclear plant

Suzanne Goldenberg and Justin McCurry in Tokyo
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Peter Lyons, who told

a Senate committee that robots were being sent to Japan. Photograph: Saul Loeb/AFP/Getty Images

The Obama administration is sending a squad of [robots](#) to [Japan](#) to help efforts to regain control over the Fukushima nuclear plant, it has emerged.

"A shipment is being readied," Peter Lyons, who oversees [nuclear power](#) in the department of [energy](#), told a Senate committee. "The government of Japan is very, very interested in the capabilities that could be brought to bear from this country."

The news came as the Japanese government said it was considering nationalising the operator of the crippled power plant at the centre of the worst nuclear accident in the country's history, amid mounting criticism of its handling of the crisis.

"Our preparedness was not sufficient," government spokesman Yukio Edano said. He said that when the current crisis was over they would examine the accident closely and thoroughly review safety standards.

The prime minister, Naoto Kan, fought off criticism of his role, insisting to MPs that a state of "maximum alert" would be maintained until the power plant had been made safe.

According to Lyons, engineers were making progress in resolving the emergency at Fukushima. "Current information suggests the plants are in a slow recovery from the accident," he told senators in Washington.

But he and Bill Borchardt, director of operations for the US nuclear regulatory commission, would not predict when the crisis might be over. "I really can't even hazard a guess on how long that will be," Borchardt said.

The advantage of deploying robots at Fukushima was underlined last week when two workers were exposed to high levels of radiation and burned. The workers were standing

in pools of extremely radioactive water in a reactor turbine room without adequate protective gear.

Robots, with electronics built to withstand radiation, can work in areas of Fukushima where radiation levels would soon kill a human engineer.

They can also help experts get a view on damage to the reactor core. Lyons said the robots would be equipped with cameras as well as devices to measure radiation.

"They could go places where you certainly wouldn't send a person," he said.

The department of energy has developed a number of remotely operated robots designed to clear up radioactive waste from department of energy test weapons sites, Lyons said.

The earliest versions were developed in the wake of the Three Mile Island accident in 1979 when robots were sent in to get a view of the damaged reactor, and to suck up radioactive water and partially melted fuel.

In addition to the robots, which will be accompanied by trainers to instruct Japanese workers in their operation, the department of energy earlier sent nearly 40 people and almost 8 tonnes of equipment, including devices that measure radiation from aircraft.

Lyons said US flights were only going within 2.5 miles of the plant, because of the elevated radiation levels.

News that the Japanese government could take a majority stake in the Tokyo Electric Power company (Tepco) came as the government admitted that its nuclear safety standards had been insufficient to protect the plant against the 11 March tsunami. Authorities vowed to overhaul regulations once the radiation leak is under control.

The struggle to contain radiation at the complex has been hit by near-daily mistakes, including two workers being drenched with radioactive water on Tuesday despite wearing supposedly waterproof suits.

Doubts over the future of Tepco, the largest power company in Asia, has coincided with anger towards its president, Masataka Shimizu, who has not been seen in public for several days.

Tepco officials said Shimizu, 66, had been ill, but said he had resumed work directing emergency operations at the company's headquarters in Tokyo.

Shimizu has not appeared before the media since 13 March; for six days from 16 March, as his employees battled to prevent stricken reactors from going into full meltdown, he reportedly did not attend crisis meetings or visit Tepco's HQ.

On 15 March Shimizu was on the receiving end of an outburst from Kan, who said the firm had been too slow to inform him of an explosion at the plant. Reporters overheard Kan demanding of Shimizu and other Tepco executives: "What the hell is going on?"

In addition, Shimizu's firm has been accused of delaying the use of seawater to cool overheating reactors at Fukushima because of the damage it might cause to the reactors. The government has since said the plant will be decommissioned.

On Sunday the firm offered wildly inaccurate readings of radiation levels inside the No 2 reactor building, for which it later apologised. Last week it emerged that two workers exposed to high levels of radiation were standing in puddles of contaminated water wearing only ankle boots.

Shimizu, an enthusiastic cost cutter, was praised for restoring Tepco to profitability after it sustained heavy losses in a 2007 earthquake. But recent reports said under Shimizu

Tepco failed to make mandatory safety checks and sought to extend the operational life of old reactors.

Tepco's shares have lost about 70% of their value – \$30bn (£19bn) – since the 11 March earthquake and tsunami, and the cost of insuring its debts against default are 10 times higher than they were before the crisis.

The government's national strategy minister, Koichiro Gemba, said nationalisation could not be ruled out. "There will naturally be various debates about Tokyo Electric's future," Kyodo news agency quoted him as saying.

Several members of the government reportedly believe the state should temporarily take control of the company to enable it to compensate businesses and households affected by radiation leaks, and to repair its damaged nuclear reactors.

Hajime Motojuku, a Tepco spokesman, said he was unaware of any plans for nationalisation.

"Our first and biggest priority at this moment is to prevent the nuclear power plant accident from worsening further," he said.

Tsunami and quake damage has forced a significant drop in Tepco's capacity to generate electricity, resulting in rolling power cuts that could last into the summer.

Tepco is reportedly in talks with several banks over emergency loans worth a potential ¥2tn (£15bn), a move that surprised some analysts given its large cash reserves.

Financial statements show that at the end of last year Tepco held cash and similar assets worth ¥432bn, and ¥7.5tn in outstanding debt.

Kan, meanwhile, faced accusations that his visit to Fukushima Daiichi the day after the tsunami had held up initial attempts to vent damaged reactors to relieve pressure inside them.

Kan denied that his visit on the morning of 12 March had worsened the situation. "It was necessary for me to go there to understand what was going on," he said. "It was helpful in making decisions later on, and it's not true that my visit caused a delay in the procedure."

Yosuke Isozaki, an opposition Liberal Democrat MP, said Kan should have ordered people living within a 12-19 miles radius of the plant to evacuate.

The 130,000 people living in the area have so far been told to remain indoors. "Is there anything as irresponsible as this?" Isozaki said.

Nuclear safety officials said the plutonium traces announced on Monday were not hazardous to health, but the discovery lends weight to fears that dangerously radioactive water is leaking from damaged nuclear fuel rods.

"The situation is very grave," Edano said. "We are doing our utmost to contain the damage."

If inhaled, plutonium, a byproduct of uranium fission, can linger in internal organs and bones and cause cancer. It is also an ingredient in mixed oxide fuel used in the plant's No 3 reactor, but officials have yet to determine whether that is the source of the leak.

