

What's Going on at Japan's Crippled Nuclear Power Plant?

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TOKYO (Reuters) - Three of six reactors at a Japanese nuclear plant damaged in a March 11 earthquake and tsunami suffered meltdowns within days, the operator said this week, raising worrying questions about why the scale of the disaster was not disclosed sooner.

The announcement of the meltdown more two months after the event came as a U.N. nuclear safety team began an investigation into the worst nuclear disaster since Chernobyl, 25 years ago.

Following are some questions and answers:

WHAT IS HAPPENING?

Cooling systems at the Fukushima Daiichi plant were knocked out by the disaster but Tokyo Electric Power Co only acknowledged on Tuesday that nuclear fuel rods at the plant's No. 1, No. 2 and No.3 had suffered meltdown.

Radiation continues to seep into the sea and the air, although at lower levels than at the peak of the crisis in mid-March.

Nearly 80,000 people have been forced to evacuate their homes, most of them from a 20-km radius around the plant. The crisis has prompted Prime Minister Naoto Kan to call for a complete review of a national energy policy.

Tepco is trying to bring the reactors to a cold shutdown, where the water cooling them is below 100 degrees Celsius. Efforts to cool the reactors have brought down temperatures and the rods are no longer melting but the No. 1 reactor is still leaking radiation and the No.2 and No.3 reactors are also believed to be leaking.

To achieve a cold shutdown at the No.1 reactor, Tepco is aiming to decontaminate the water already accumulated there and then pump it back to cool the reactors.

Officials are also concerned about the slow pace of cooling at the No. 3 reactor, and the No. 4 reactor was so badly damaged by a hydrogen explosion that workers will have to try to shore it up with steel beams and concrete to prevent a collapse.

In an effort to limit the spread of radioactive dust, the No. 1, No. 3 and No. 4 reactors will be covered with giant tent-like polyester covers supported by steel beams.

WHAT IS HAMPERING TEPCO?

Water is a huge headache. It has pumped in tens of thousands of tonnes of it to cool the reactors and much of it has ended up as contaminated runoff, accumulating as huge pools.

It is building tanks and towing in a massive barge to secure extra storage and is looking to build plants to treat some of the water. The operator caused an international outcry in April when it was forced to dump thousands of tonnes of contaminated water into the Pacific.

The approaching rainy season and typhoons and lightning during the summer could pose extra problems.

HOW LONG WILL THE CRISIS LAST?

Tepco aims to stabilise the plant by January 2012. But with the extent of the damage to the reactors gradually being revealed, some experts said the process could take longer.

Even after the plant is under control, recovery work at the site is expected to continue for years.

(Reporting by Shinichi Saoshiro, Yoko Nishikawa and Mayumi Negishi; Editing by Nick Macfie)