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Meltdowns also at No.2 and No.3 reactors

The operator of the Fukushima Daiichi nuclear plant says fuel meltdowns are believed to have occurred at the No.2 and No.3 reactors within a few days after the March 11th earthquake and tsunami.

Tokyo Electric Power Company said earlier this month that fuel rods at the plant's No.1 reactor had melted.

The utility said on Tuesday that data analysis shows the No.2 reactor may have lost its cooling system shortly after 1:00 PM on March 14th, 3 days after the quake.

If all the fuel rods were exposed, they would have started melting at around 8:00 PM that day. By 8:00 PM on March 15th --- some 101 hours after the quake --- much of the fuel would have melted and collected at the bottom of the reactor pressure vessel.

The No.3 reactor likely lost its cooling system at around 2:00 AM on March 13th. Fuel would have begun melting at around 9:00 AM that day, and most of it would have dropped to the bottom of the vessel by 3:00 AM on March 14th --- about 60 hours after the quake.

The possibility of a meltdown would have been the same even if the rods were partially submerged in water. Nearly half the fuel rods at the 2 reactors would have melted down within a week of the March 11th disaster.

Tokyo Electric says it had assumed from the start that the fuel rods were damaged, but had focused on cooling the reactors rather than assessing the extent of damage.

Goshi Hosono, who serves as advisor to the prime minister, said the delay in publicizing the extent of damage may have been inevitable.

But he expressed remorse over the government's overly optimistic response to the crisis.

Masanori Naito of the Institute of Applied Energy says analysis of data on the reactors' conditions is easy, and could have been completed in a day.

He says the analysis should have been done much earlier, as it would have provided important clues to long-term cooling and other measures.

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