



Immediately after the earthquake, at Units 1, 2 and 3 at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS, which were in operation, all reactors were shut down automatically.

Even after reactors are shut down, it is necessary to remove the decay heat of core fuel. At the NPS, after external electrical power supply was lost due to the collapse of transmission line towers, etc., emergency diesel generators were automatically activated and procedures for normal cold shutdown were commenced.

However, the subsequent tsunamis hit the NPS and flooded those emergency diesel generators, switchboards and other equipment. All Units except for Unit 6 lost all AC power and cooling seawater pumps stopped functioning. Unit 1 thus lost all functions to cool down the reactor. While Units 2 and 3 continued cooling reactors for some time using the Reactor Core Isolation Cooling System (RCIC) and the High Pressure Coolant Injection System (HPCI), respectively, which can work without AC power, these systems also stopped soon and both Units eventually lost the means to remove the decay heat of core fuel.

Under such circumstances, NPS staff worked to activate alternative coolant injection routes using fire pumps or other equipment at Units 1, 2 and 3, but partly due to the possibility of another tsunami hitting, until those alternative measures were commenced, reactor cores were left uncooled. Coolant injection is considered to have been suspended for around 14 hours at Unit 1 and for around 6.5 hours at Units 2 and 3. Additionally, many hidden bypasses in the alternative coolant injection system made it difficult to supply injected water effectively to the reactor cores for cooling, and the reactors went into meltdown.

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