

## **Fukushima: N-fuel in 'cooling state'**

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The Atomic Energy Society of Japan, said Thursday that melted nuclear fuel in the Nos. 1 to 3 reactors of the Fukushima No. 1 nuclear power plant was in a cooling state after forming into small particles that have settled at the bottom of pressure vessels.

The AESJ's nuclear safety investigation committee has been studying the crisis surrounding the Nos. 1 to 3 reactors based on data released by Tokyo Electric Power Co. and the Economy, Trade and Industry Ministry's Nuclear and Industrial Safety Agency.

According to the committee, fuel rods in the No. 3 reactor's pressure vessel are completely submerged in water, but the fuel rods in the Nos. 1 and 2 reactor pressure vessels are partially exposed.

The committee said the fuel rods in the Nos. 1 to 3 reactors were damaged and had partly melted. The committee has presumed that the melted nuclear fuel formed into particles measuring several millimeters or less after coming into contact with cooling water. The particles then settled on fuel rod support plates and at the bottom of the pressure vessels and are in a cooling state, it said.

The assumption is consistent with the fact that water temperatures in the lower part of the pressure vessels are low.

"The contaminated water that leaked into the turbine buildings also is believed to contain particles of melted fuel," Takashi Sawada, deputy chairman of the AESJ, explained.

Other experts believe the melted fuel became a magmatic lump with a core temperature in excess of 2,000 C, which later settled on the bottom of the pressure vessels. However, the committee considers there is no danger of intense heat from the melted fuel destroying the pressure vessels.

The committee also said it was unlikely that an explosion would occur and cause a large volume of radioactivity to be released from the reactors and nuclear fuel temporary storage pools.

The committee pointed out that the immediate top priority is to stop radioactive contaminated water from leaking into the turbine buildings.

Sawada also stressed the need to take measures against any power outages that may be caused by strong aftershocks.

"The nuclear fuel is generating less heat than before, but [the situation] could become dangerous if injecting water into the reactors stops for two or three days and there is a lack of cooling water," Sawada said.

***The Yomiuri Shimbun***

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\* The Yomiuri Shimbun, Apr. 16, 2011:

<http://www.yomiuri.co.jp/dy/national/T110415004792.htm>