Attachment

Evaluation of Impact on Hamaoka Nuclear Power Station and Responses based on "Concerning the Distribution of Seismic Intensity and Tsunami Height in the Event of a Massive Earthquake in the Nankai Trough," (Outline)

1. Concept of evaluation and countermeasures

The evaluation was conducted of the present status of Hamaoka Nuclear Power Station (Units No. 1 and 2: Undergoing decommissioning; Units No. 3, 4 and 5: Shut down).

In addition, based on the Cabinet Office's announcement that the maximum height of a tsunami striking Omaezaki City, Shizuoka Prefecture, would be 21.0 meters, the evaluation was conducted based on the assumption that only equipment positioned at the highest points of the facility would be able to be used.

2. Time for water level to drop to apex of effective length of fuel

Evaluation of the time for the water level to reach the apex of the effective length of the fuel (the upper end of the fuel pellets when fitted) in the event that cooling functions for the reactors and the spent fuel storage pools were lost and water injection also ceased to function, showed that the shortest time would be approximately six days.

【Time for implementation of responses】

An evaluation conducted based on the current status of Hamaoka Nuclear Power Station determined the time until the water level would drop to the apex of the effective length of the fuel if reactor cooling functions were lost and water injection also ceased to function.

		Unit No. 1	Unit No. 2	Unit No. 3	Unit No. 4	Unit No. 5
Reactor	Fuel	–	–	764 rods	–	872 rods
	Time until water level reaches fuel	–	–	Approx. 10 days	–	Approx. 6 days
Spent fuel storage pool	Spent fuel	1 rod	1164 rods	2060 rods	2741 rods	1373 rods
	Time until water level reaches fuel	Does not reach fuel	Approx. 108 days	Approx. 36 days	Approx. 39 days	Approx. 119 days

(Evaluation as of 12:00 AM, April 2, 2012)
More than 17 years has passed since one fuel rod was removed from Unit No. 1, and because there is almost no decay heat, it is judged that the water level will not reach the fuel.

3. Results of evaluation of impact

It was verified that before the water level would drop to the apex of the effective length of the fuel, water could be injected using portable power pumps (engine drive; pumping capacity: 52.8 m^3/h) (procedures ① – ④ in the figure at the right), which were positioned in April 2011 as an emergency safety measure, thus ensuring safety.

4. Assessment of viability

Checks of the accessibility of essential areas, the system of operational procedures, and other factors were conducted.

Check of viability of pumping water using portable power pumps

【Injection of water into reactors 】

Water will be supplied to the reactors using portable power pumps, ensuring safety. (Units No. 3 and 5)

	Unit No. 3	Unit No. 5
Target operating time	2 hours	2 hours
Necessary rate of water injection	0.75m^3/h	1.1m^3/h
Injection capacity of portable power pump	52.8m^3/h	
Fuel reserves (Gasoline)	Approx. 7 days	
Water source (1) Fresh water tank	850m^3	706m^3
Water source (2) Firefighting water tank	120m^3	160m^3
Period for which water level does not drop to apex of effective length of fuel using water sources (1) and (2)	Approx. 40 days	Approx. 38 days

・ From the 7th day onwards, fuel will be transported from outside the power station by air, etc.

・ River water and seawater can be injected when power station water sources 1) and 2) are depleted

【 Injection of water into spent fuel storage pools】

Water will be supplied to the spent fuel storage pools using portable power pumps, ensuring safety. (Units No. 2 – 5)

	Unit No. 2	Unit No. 3	Unit No. 4	Unit No. 5
Target operating time	2 hours	2 hours	2 hours	2 hours
Necessary rate of water injection	0.35m^3/h	1.3m^3/h	2.5m^3/h	0.50m^3/h
Injection capacity of portable power pump	52.8m^3/h			
Fuel reserves (Gasoline)	Approx. 7 days			
Water source (1) Fresh water tank	–	850m^3		706m^3
Water source (2) Firefighting water tank	60m^3	120m^3	120m^3	160m^3
Period for which water level does not drop to apex of effective length of fuel using water sources (1) and (2)	Approx. 115 days	Approx. 53 days	Approx. 48 days	Approx. 191 days

・ From the 7th day onwards, fuel will be transported from outside the power station by air, etc.

・ River water and seawater can be injected when power station water sources 1) and 2) are depleted