Explanatory

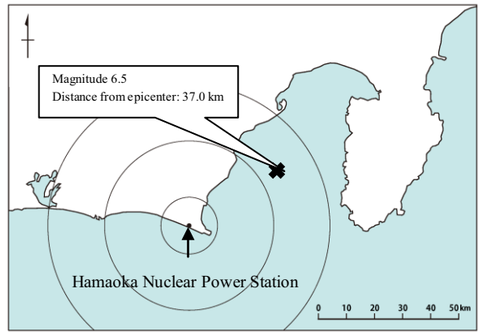
●Suruga Bay Earthquake

Time of occurrence: 5:07 AM, August 11, 2009

Earthquake parameters (Japan Meteorological Agency):

Magnitude: 6.5 / Location of epicenter: 34° 47.1' north latitude, 138' 29.9' east longitude / Focal depth: 23 km / Earthquake mechanism: Reverse fault with a strike-slip component (Pressure axis: North-northeast – South-southwest)

Distance from Hamaoka Nuclear Power Station: Epicentral distance 37.0 km/Hypocentral distance 43.5km



Status of Hamaoka Nuclear Power Station when earthquake occurred

Unit	Unit1	Unit2	Unit3	Unit4	Unit5
Operating status	Shutdown (Operation terminated)		Shutdown (Undergoing periodic inspection)	Undergoing adjustment operation ↓ Automatic shutdown	In commercial operation ↓ Automatic shutdown
Measured acceleration *	109gals		147gals	163gals	426gals
Set values for automatic shutdown due to ground motion	_		120gals		

*Acceleration in 2nd basement level of reactor building as recorded by seismograph for operators in Central Control Room to verify vibration due to earthquake

● Study of the Effects on the Seismic Safety of Hamaoka Nuclear Power Station Unit 5 based on the Experience of the Suruga Bay Earthquake (Published December 15, 2010)

This report compiles details presented to a government working group(1) concerning an analysis of factors resulting in a higher level of seismic vibration being observed in seismographic records at Hamaoka Nuclear Power Station Unit 5 than at other reactors during the Suruga Bay Earthquake, and a study of effects on the seismic safety of Unit 5 based on the experience of the Suruga Bay Earthquake.

(1) The government working group refers to the Joint Working Group on Earthquake, Tsunami, Geology, and Ground Foundation of the Structural Working Group under the Seismic and Structural Design Subcommittee, Nuclear and Industrial Safety Subcommittee of the former Advisory Committee for Natural Resources and Energy.

● Equipment and facilities essential to the maintenance of safety in a state of shutdown

The functions that are essential to the maintenance of safety in the state of shutdown of Hamaoka Nuclear Power Station are the fuel cooling function, the maintenance of subcriticality, and the sealing of radioactive substances.

Cooling function: Because it is necessary to verify the soundness of the spent fuel pools in order to ensure the cooling function by means of the alternative injection of water*1 via portable equipment, the reactor buildings, which are integrated with the spent fuel pools, and the foundations that support the reactor buildings are subject to evaluation.

Functions that maintain subcriticality: The spent fuel storage racks that ensure that spent fuel in the spent fuel pools remains subcritical are subject to evaluation.

Sealing of radioactive substances: Because the sealing of radioactive substances is ensured by ensuring the cooling function and the maintenance of subcriticality, the subjects of evaluation for this category are continuous with the subjects of evaluation for the above categories

*1 The evaluation confirmed that even assuming the loss of cooling and water injection functions for the spent fuel pools, it would be possible to ensure safety by injecting water using portable equipment positioned in elevated areas of the facility within the time it would take for the fuel to become exposed.

●Shear strain

Used in the evaluation of the earthquake-resistant walls in the reactor buildings, this figure is obtained by dividing the deformation of the apex of the wall at each floor by the height of the wall at that floor.

●Slip safety factor

A value obtained by dividing the shear strength of the slip surfaces in the ground foundations of the reactor buildings, etc. by the shear force generated in an earthquake. The benchmark value used in the evaluation takes into consideration a margin of 50%.

●Ground amplification rate

Using seismographic records obtained from seismographs positioned in 24 locations throughout the entire grounds of the facility, the relative tendency towards vibration (as a ratio) in the vicinity of Unit 5 (seismographs No. 9 – No. 13) and Units 1-4 (seismographs No. 3 – No. 8) in relation to a reference point located almost exactly in the center of the grounds (seismograph No. 7) was analyzed.

●Offset vertical profiling (VSP)

Offset VSP is a method of surveying underground structures by generating elastic waves at the ground surface using a seismic vibrator or similar device and measuring the vibration using geophones positioned in bore holes. This makes it possible to obtain information about underground structures that are located at a distance from the bore holes.

Method for offset VSP survey on land (Image)