The Impact of the Earthquake and the Tsunami on Unit 1-4 Turbine Buildings and the Current Statuses

When the Tohoku-Chihou-Taiheiyou-Oki Earthquake occurred on March 11, 2011, Unit 1-4 reactors and turbines automatically stopped while in operation with the nominal thermal power. Upon our visual inspection of the equipments/facilities in the Turbine Buildings, no significant damage was found. Unit 1-3 Turbine Buildings were flooded with seawater due to the Tsunami. In order to check the statuses of equipments/facilities, the inside of the high-pressure turbine and low-pressure turbine (mainly at Unit 4) was inspected from November 7, 2011 to January 11, 2012. As a result, contact marks were found on the rotor blade and stator blade caused by the earthquake., however, they do not have impact on safety. (As mentioned in the press release on January 12, 2012) Currently the turbines are suspended and properly stored.



Turbine Building Appearance

No major damage found on the appearance of Turbine Buildings.



Current Conditions of the Operation Floor (2nd floor) of Unit 1-4 Turbine Buildings

No major damage was found on the equipments/facilities in Unit 1-4 Turbine Buildings.



The 2nd floor of Unit 1 T/B (Photo taken on May 15, 2012)



The 2nd floor of Unit 2 T/B (Photo taken on May 15, 2012)



The 2nd floor of Unit 3 T/B (Photo taken on May 15, 2012)



The 2nd floor of Unit 4 T/B (Photo taken on May 15, 2012)

The Impact of the Tsunami on Unit 1-4 Turbine Buildings and the Current Statuses

Water removal and cleaning have been completed in the flooded buildings.



Flooded condenser room in Unit 1 T/B basement (Photo taken on March 20, 2011)



Flooded heating steam condensate water transfer pump in Unit 3 T/B 2nd basement (Photo taken on March 19, 2011)



Current condition of the condenser room in Unit 1 T/B basement (Photo taken on May 24, 2012)



Current condition of the heating steam condensate Water transfer pump in Unit 3 T/B 2nd basement (Photo taken on May 24, 2012)

The Impact of the Earthquake on Unit 4 Turbine Building (Unit 4 Turbine Inspection) (Mentioned in the press release on January 12, 2012)

The inside of Unit 4 turbine was inspected in order to assess the impact of the earthquake.

<Inspection period> November 7, 2011 – January 11, 2012 <Equipments subject to the inspection>

- Low-pressure turbine (A) : Rotor blade (whole circumference), stator blade (upper half)

- High-pressure turbine: Rotor blade (whole circumference), stator blade (upper half)

- Bearing: From the high-pressure turbine to low-pressure turbine (A)

<Result>

- In addition to the minor cracks seen during normal operation, contact marks were found on the tip of the rotor blade/stator blade of low-pressure turbine (A)/high-pressure turbine as well as on the oil thrower of the bearing which were caused by the earthquake. However these do not have impact on safety.

Upon our inspection, we found no major damage which may have impact on safety. The turbines and related equipments will be properly stored.





Unit 4 high-pressure turbine inspection (December 7, 2011)

The high-pressure turbine has 1-8 rotor blades and stator blades on both sides (symmetrically aligned). Upon inspection, contact marks were found on the tip of 1-8 rotor/stator blades caused by the earthquake. However, these do not have impact on safety.



Unit 4 low-pressure turbine inspection (December 2, 2011)

The low-pressure turbine (A) has 9-17 rotor blades and stator blades on both sides (symmetrically aligned). Upon inspection, contact marks were found on the tip of 9-14 rotor/stator blades caused by the earthquake. However, these do not have impact on safety.