

## The Kashiwazaki Kariwa NPS Today: Three Months after the Earthquake

Three months have passed since the Niigata-Chuetsu Offshore Earthquake struck. This report will look at the effects of that temblor on the world's largest nuclear power plant, the Kashiwazaki Kariwa Nuclear Power Station (NPS) of the Tokyo Electric Power Co. (TEPCO). The NPS is composed of seven units, with a total output of 8,212MW.

At 10:13 a.m. on July 16, 2007, an earthquake measuring 6.8 on the Richter scale (and 6-plus on the Japan Meteorological Agency's earthquake-intensity scale) occurred at a depth of around 17km. At that moment, Units 2, 3, 4 and 7 were in operation (Unit 2 was being started up after inspections), and all four were automatically halted (scrammed) after an emergency signal indicating large earthquake acceleration was received. Although it was a Monday, the day happened to be a Japanese national holiday (Marine Day). All four of the units halted operation in a normal fashion. Including the three units shutdown for periodic inspection, no extensive damage has yet to be confirmed in any of the facilities and equipment considered important from a safety standpoint.

In the central control room of each unit, the workers confirmed that the control rods were completely loaded into the reactors, and that the nuclear fission chain reactions had stopped. Next, they devoted their attention to eliminating the decay heat of the nucleus.

Despite the earthquake, the electrical transmission lines were secured, and external electricity was used to circulate the coolant water. By shortly before 7:00 a.m. on the following morning at the latest, the temperature of the coolant water in the reactor core of all four units still operating was brought down to below 100 degrees C, with the pressure reduced to atmospheric pressure -- the so-called "cold shutdown" of the reactor. During that interval, the safety valve releasing steam was not set off, nor was an emergency diesel generator needed.

Three months since the earthquake, detailed inspections are still being conducted successively of the reactor interiors and the main equipment.



An earthquake meter (lower center) in the upper part of the turbine mount of Unit 3, which experienced the greatest earthquake acceleration in the July 16 quake. The acceleration experienced was measured at 2,058gal (in an E-W direction), some 2.5 times the design acceleration of 834gal.



An area where the ground subsided by approximately one meter. Within the NPS's perimeters, interim restoration work has been done on the roads, making them passable, but even now, work to repair ground subsidence, etc., on the roads is taking place everywhere.

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