

Utilities Confirm Safety of Key Facilities

On September 20, Japan's electric power utilities, the Japan Atomic Power Co. (JAPC), the Japan Atomic Energy Agency (JAEA) and the Japan Nuclear Fuel Ltd. (JNFL) all released the results of seismic safety evaluations that each had made of their facilities, based on earthquake data recorded at the Kashiwazaki Kariwa NPS during the Niigata Chuetsu Offshore Earthquake. At most of the facilities, some equipment was found in which the floor design response spectrum of reference ground acceleration exceeded the spectra at Kashiwazaki Kariwa NPS. But, taking into account existing seismic margins, the safety functions were found to have been maintained for important equipment at all facilities.

Response spectra for the equipment under consideration and those at Kashiwazaki Kariwa NPS in the characteristic period for that equipment were compared (ratio α). If the spectrum at Kashiwazaki Kariwa was greater (if α is greater than 1), a further evaluation was made taking seismic margins into account. Another comparison was made between the acceptable stress and deformation according to the Japan Electric Association's seismic design technical guidelines, etc., and response values for reference ground acceleration (ratio β). If α was less than β , then the safety function was deemed to have been maintained.

The equipment evaluated included various items important in the activities of stopping, cooling and confining; each facility under investigation had around ten such items, the composition of which differed at each place. Although most of the equipment at Fukushima I NPS of the Tokyo Electric Power Co. (TEPCO) had an α value exceeding 1, and all the equipment at JAPC's Tokai II NPS had an α value less than 1, the overall results differed depending on the unit. Importantly, no equipment at any of the facilities showed an α value greater than β .

Each company reported its results to the Nuclear and Industrial Safety Agency (NISA), which confirmed the appropriateness of both the selection of equipment evaluated and the method of evaluation.

The companies had all earlier said that they would voluntarily carry out the evaluations, if possible within a one-month period, in their reviews of plans to implement seismic back-checks submitted to NISA on August 20. On this occasion, in order to do the evaluations in the relatively short time, a simplified, conservative method was employed based on comparisons of α and β , as explained above.

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