Summary of the Report on the Geology and Tectonics of the Kashiwazaki-Kariwa NPS Site and its Adjoining Areas

1. Introduction

Following the occurrence of the Niigata-Chuetsu-Oki Earthquake on July 16, 2007, the Tokyo Electric Power Company, Inc. (TEPCO) received an instruction from the Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade, and Industry (METI) to ensure safety at the Kashiwazaki-Kariwa Nuclear Power Station (NPS)[*1]. In response to this, TEPCO has been conducting evaluation of the seismic safety of the safety-critical facilities of the NPS.

As part of this, TEPCO has been surveying the geology and tectonics of the NPS site and its adjoining areas and reporting the progress and results to the relevant council of the Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade and Industry (METI)[*2]. Taking account of feedback from them, TEPCO has been summarizing the survey results. The geological survey results that had already been reported were compiled into an interim report and submitted to NISA on May 12, 2008.

Subsequently, TEPCO received the results of deliberation by NISA as well as feedback from NSC and the committee of the municipal government. In consideration of them, TEPCO revised the interim report and submitted it to NISA today. Revisions include modifications to sections concerning the evaluation of active faults in areas in and around the NPS site and the addition of evaluations of the geology, tectonics and crustal movements of the NPS site and its adjoining areas.

The following is a summary of the revisions to the interim report.

*1 Instruction to ensure safety at the Kashiwazaki-Kariwa NPS

"[TEPCO] should continue the analysis of the seismic observation data obtained during the [Niigata-Chuetsu-Oki] Earthquake and the confirmation of the seismic safety of its safety-critical facilities."

An excerpt from "On Ensuring Safety at the Kashiwazaki-Kariwa Nuclear Power Station, which Sustained Damages by the 2007 Niigata-Chuetsu-Oki Earthquake," issued on July 16, 2007 (NISA No. 2, 19-07-16)

*2 Council of NISA, METI

Joint Working Group on Earthquake, Tsunami, Geology, and Ground Foundation under the Seismic and Structural Design Subcommittee, Nuclear and Industrial Safety Subcommittee, Advisory Committee for Natural Resources and Energy

2. Summary of the revisions

(1) Redefinition of the F-B fault length

The interim report estimated the length of the F-B fault to be approximately 34 km in consideration of uncertainties about the fault length, although the active segment of the fault measured approximately 27 km in the geological survey.

TEPCO has decided to redefine the fault length that takes account of uncertainties as approximately 36 km, after examining feedback from the authorities and the "Draft Summary of the Discussion at the Joint Working Group of the Seismic and Structural Design Subcommittee concerning Active Faults in Land and Water Areas Adjoining the Kashiwazaki-Kariwa Nuclear Power Station" (issued by NISA on August 26, 2008).

(2) Addition of evaluations of the geology, tectonics and crustal movements of the NPS site and its adjoining areas.

The interim report provided a summary of evaluations of the geology, tectonics and active faults of areas in and around the NPS site.

The present report has been compiled after reviewing the geology and tectonics of the NPS site and its adjoining areas, which were deliberated on by the authorities after the submission of the interim report. In this review, particular attention was paid to the relations between the crustal movements observed during the Chuetsu-oki Earthquake and the Madonosaka and other faults. The report concludes that there is no indication that the Madonosaka and other faults are active at the NPS site and its adjoining areas and that there are no active faults or folds that should be considered in the seismic design of the NPS.

3. Our future actions

In consideration of the survey results compiled into the report, TEPCO will continue the seismic safety evaluation of its facilities, based on the design-basis seismic motion defined separately.

Fault name		Fault length	Remarks
Land area	1. Kakuda/Yahiko fault	Approx. 54 km	Simultaneous activity (approx. 91 km in total fault length) is considered for safety evaluation.
	2. Kihinomiya fault	Approx. 22 km	
	3. Katagai fault	Approx. 16 km	
Water area	4. Sado Eastern fault	Approx. 37 km	
	5. F-B fault	Approx. 36 km	Estimated to be approx. 34 km (approx. 27 km) in the interim report.
		(Approx. 27 km)	
	6. Sado Southern fault	Approx. 29 km	
	7. F-D fault	Approx. 30 km	Simultaneous activity (approx. 55 km in total fault length) is considered for safety evaluation.
	8. Takada Bay fault	Approx. 25 km	

Chart: Estimated length of major active faults



Chart: Major active faults that have been revised