

Company name	Kansai EPCO
Date of occurrence	4, February, 2008
Unit name	Takahama 3
Event	Confirmation of Flaws at the Welds of Primary Coolant Inlet Nozzle of Steam Generators
International Nuclear Event Scale (INES)	0
Status of report	Interim report

Status when event occurred

During the 18th periodic inspection outage, shot-peening work\*1 was scheduled to be performed, as a preventive maintenance of stress corrosion cracking, on the inner surfaces of welds (6 locations of welds in total) of the primary coolant outlet and inlet nozzles of 3 steam generators (hereafter referred to as "SG"), in considering that stress corrosion cracking events at nickel base alloy 600 welds have occurred in Japan and aboard.

When the eddy current test (hereafter referred to as "ECT")\*2 was conducted on the inner surface of the relevant welds in advance from January 12 to 25 for preparation of this work, significant indications were identified at the inlet nozzle weld of each steam generator, i.e., 7 for SG-A (maximum length: about 28 mm), 16 for SG-B (maximum length: about 38 mm), and 9 for SG-C (maximum length: about 14 mm) (Multiple imminent indications were evaluated to be continuous.).

In order to identify the depth of flaw, the ultrasonic test (hereafter referred to as "UT")\*3 was conducted for 32 locations in the SG inlet nozzle welds, where significant indications were identified by the ECT. As a result of the UT, it was evaluated that the wall thicknesses of 11 locations of the inlet nozzle weld of SGs in total, i.e., 2 for SG-A (maximum depth: about 9 mm), 6 for SG-B (maximum depth: about 15 mm), and 3 for SG-C (maximum depth: about 9 mm), were less than 75.26 mm which is specified in the application of approval for construction plan subject to the Electric Utility Industry Law.

Checks such as observation of metal structure by SUMP method\*4 will be conducted to investigate causes. There was no impact of radioactivity to the environment due to this event.

\*1: Shot-peening work  
This work is to make tensile residual stress as compressive stress by peening metal balls on metal surfaces with high velocity.

\*2: Eddy current test (ECT)  
This method detects flaws by the change of electromagnetic induction generated in the materials by putting an eddy current on the material surface.

\*3: Ultrasonic test (UT)  
The test is to measure the configuration, shape and size of the flaw by observing echoes of ultrasonic wave reflected from the flaw.

\*4: SUMP method

The method is to make a photo image by putting film on the surface of the damaged portion, and to observe it by microscope.

Summary of examination of cause

Under investigation

Cause of event

Under investigation

Measures to prevent recurrence

To be determined

# Takahama Power Station Unit 3 Flaws at Inlet Nozzle Welds of Steam Generators

