

Standardization study on the non-destructive examination performance demonstration to ensure reliability of power generation facilities

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Abstract Ultrasonic examination is an examination method to determine defects in objects, and in particular, PAUT has been used as a non-destructive examination method replacing RT since the Nuclear Safety Act was revised. In PAUT, equipment operation and defect determination differ depending on the NDE personnel skill level, so the skills of NDE personnel performance a very important role. Nuclear power plants conduct performance demonstration in accordance with the Nuclear Safety Act, but thermal power plants do not conduct performance demonstration because there are no regulations on performance demonstration. In this study, the performance demonstration requirements of NDE personnel were presented in the Korea electro-technical code(KEC) and Korea electric power industry code (KEPIC) applied to thermal power plants. For the development of this code, we gathered opinions from industry, academia, and research circles to derive results optimized for the application of power generation sites. We aim to contribute to securing the reliability of safety diagnosis by securing the skills of NDE personnel. This study is being carried out with the support of the Korea Energy Technology Evaluation Institute with financial resources from the Ministry of Trade, Industry and Energy, and has been conducting research and development for a total of three years from November 2021 to October 2024. **Keywords:** Ultrasonic examination, PAUT, Performance demonstration, Korea electro-technical code(KEC), Korea electric power industry code(KEPIC)