Current Status and Future of Japanese Performance Demonstration system in FY 2024

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The Performance Demonstration (PD) Center of the Central Research Institute of Electric Power Industry (CRIEPI) commenced PD examinations for depth sizing of intergranular stress corrosion cracking (IGSCC) in austenitic stainless steel pipes in March 2006. As of September 2023, 59 examination sessions had been completed and 82 candidates had passed the examination. A total of 137 tests had been administered, including re-tests and re-certification. Currently, Japanese PD qualification code NDIS0603 is being revised so as to add the Weld Overlay PD (WOL-PD) and the dissimilar metal weld crack depth-sizing PD (DMW-PD). The Japanese regulator endorsed revised NDIS0603 with some additional requirements. The CRIEPI is preparing the WOL-PD and DMW-PD examinations under the cooperation of EPRI NDE center. The Japanese PD systems are currently only being applied to crack depth sizing, rather than crack detection because UT for ISI had been performed by UT engineer with a great deal of experience in Japan. On the other hands, most of Japanese nuclear power plants have ceased the operation for the last decade, but now more than 10 PWR Plants are in normal operation, and periodic ISI is performed regularly. However, total workload of ISI is much lower than it was before 2011. During the past 10 years, very few fresh NDE engineer come to the nuclear NDE field. So, the average age of field NDE engineer is getting higher. For this issue, it is necessary to develop a method for training young NDE engineers in a short period of time and a system that supports the decision-making of engineers who are not so skilled. This paper presents the current status and future of Japanese PD system including: - Trends of passed and failed candidate of IGSCC depth sizing PD. - Status of the preparation of WOL-PD and DMW-PD - Result of trial training for examination personnel using virtual UT system for small diameter piping.