

Development of an Ultrasonic Simulator for Manual Ultrasonic Examinations to Further Training, Proficiency, and Reliability of Ultrasonic Examinations

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Over the last few years, the EPRI NDE Program has had ongoing research focused on the development of an Ultrasonic Simulator that can realistically simulate manual conventional examinations of nuclear plant components. In 2020, the prototype system that provides realistic playback of ultrasonic data on simulated specimens using simulated probes and reference blocks was delivered to the industry. The successful development of this prototype has provided the industry with an additional method for performing training, proficiency maintenance, hands-on practice, and will potentially allow examiners to increase their experience hours using a simulator in lieu of real specimens, instruments, and search units. The advantage to this is the reduced need for travel for examiners and plant personnel along with a reduction in cost versus purchasing or renting specimens. Another major potential advantage to this is the increased access to specimens that have realistic service induced defects (i.e. IGSCC). Due to the cost reduction pressures being experienced industry wide many examiners are no longer able to practice on these specimens and are missing out on a unique opportunity to maintain proficiency on field removed flaws. The EPRI UT Simulator prototype includes several of these field removed specimens and as such, expands the ability for industry members to get access to these specimens at their facilities or plants without the need for costly travel. This presentation will provide a summary of the current state of ultrasonic simulator technology as well as an update of in process and future enhancements to the technology.