

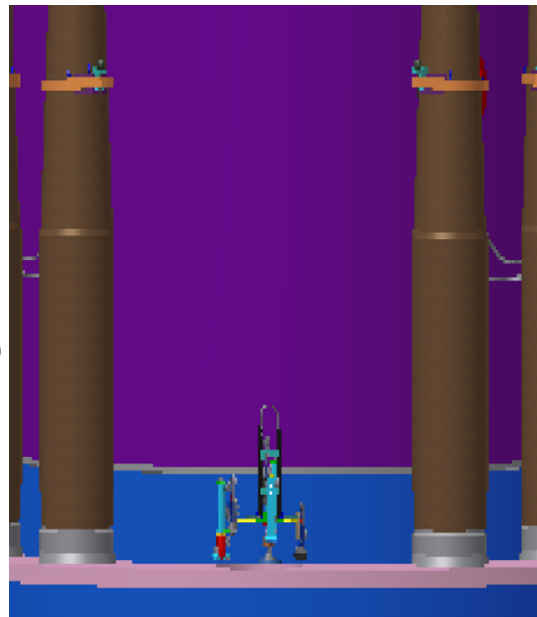
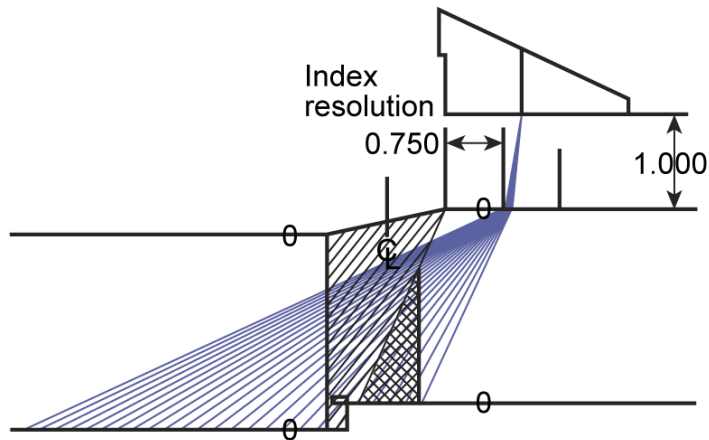
Access Hole Cover Ultrasonic Inspection Tool

Background

The Access Hole Cover (AHC™) ultrasonic (UT) inspection tool was designed to improve the quality of examinations in boiling water reactor (BWR) nuclear power plants, while providing critical-path savings and mitigating radiation exposure during refueling outages. The tool allows for ultrasonic inspections in parallel with fuel movement and reactor maintenance activities without interfering with other in-vessel operations that require the refueling bridge or auxiliary platforms.

The AHC UT inspection tool design provides optimal examination coverage and a reduced setup and examination time. The BWR field services in-vessel ultrasonic manipulators eliminate the required use of overhead cranes, refueling bridges and auxiliary platforms, and can be deployed and operated with a 360-degree platform installed.

The AHC UT inspection tool has been successfully demonstrated to support utility boiling water reactor vessel and internals project (BWRVIP) examination guidelines.



AHC UT inspection tool

Description

The AHC UT inspection tool is a simplified universal scanner. Once installed, the tool is the only scanner with the ability to crawl itself into position. This minimizes the installation time and personnel dose exposure associated with manually centering the equipment. The scanner can be operated from an offset position through the use of an automated auto-centering feature within the motion control system, which maximizes scan coverage and creates flexibility regarding the AHC UT inspection tool's scan position. In addition, the scanner can accommodate various weld and surface conditions by incorporating circumferential and radial flaw detection with both contact and immersion phased-array techniques.

Benefits

Westinghouse customers benefit from the AHC UT inspection tool in the following ways:

- Critical-path savings and unparalleled scheduling flexibility
- Inspections performed in parallel with fuel moving and other in-vessel activities
- Best-in-class data quality and coverage for accurate results and flaw characterization
- Modular and flexible design accommodates various plant configurations
- Minimized need for continuous tool monitoring by personnel and cameras, which frees up valuable 360-degree platform or refueling bridge space for other in-vessel activities
- Built-in contingencies to minimize potential failure mode effects

- Minimized project delivery crews in support of cost reduction and as-low-as-reasonably-achievable goals
- Minimized human manipulation of equipment reduces dose exposure and human performance errors
- Maximized BWRVIP project inspection-cycle intervals
- Standard platforms for electrical, pneumatic and hydraulic motion control, ultrasonic systems, cameras, communications and standard refueling equipment
- Standard platform for cross utilization of spare parts, cost control and personnel knowledge
- Proven inspection results including zero system or tool failures on a first-of-a-kind inspection tool deployment

Experience

The AHC UT inspection tool was successfully deployed at a U.S. nuclear power plant in October 2012. It performed as designed with zero system or tool failures and completed the examination scope ahead of schedule. The AHC tool surpassed customer expectations in comparison to previous examinations by providing higher quality data that helped characterize the condition of the access hole components versus previous examination results.

The tool contains self-centering features that make deployment very simple and does not require the constant oversight other industry tooling has required in the past.

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