

Nuclear RPV inspection with multiple ROV:s for shorter inspection time

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The nuclear industry worldwide needs efficient and innovative ways to carry out non-destructive testing on wet surfaces. Nuclear power plants expect a variety of complex underwater inspection activities to be performed during an outage. Advanced ROVs are needed such as the multiple manipulators developed by DEKRA, with possibility to inspect vessel welds and nozzles at the same time. Specialized ROV technology allow inspections to happen simultaneous in the reactor to shorten the inspection time as much as possible. The Särinnar, a ROV, inspecting the connection welds, nozzle to shell welds, inner radius of the large inlet and outlet nozzles. On the same time, the Skidbladner, inspecting circumferential and longitudinal Vessel Welds from the inside of Reactor Pressure Vessel. As the Särinnar and Skidbladner inspect the bottom nozzles are mounted by Gungner, the BMI inspection system. All together the Swedish NDT team inspected the full scope of the reactor vessel according to regulation, SSMFS 2008:13, in Sweden in 4.5 days. This was possible with advanced tailor-made probes pans (with different functionality in the same probe) with possibility to collect data for detection, characterization and evaluation on the same time. Also, a well prepared crew synchronized between the robotics operation and NDT. A challenge is also to prepare and configure the different maipulators for the different tasks in the most efficient sequence.