

Customer Success Story: BWXT Technologies

BWX Technologies Leverages Zetec Inspection Technologies to Reduce Steam Generator Inspection Times



“Going with a full suite of Zetec technology really helps us unlock the performance we’re looking for,” Williams says. “We’re able to acquire and analyze more data at faster rates simply because we’re using a complete and proven system. It’s one package, and everything works together properly every time.”

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Vice President and General Manager,
U.S. Nuclear Energy, at BWX Technologies, Inc

There are two big variables when it comes to managing the cost of eddy current testing in the steam generator market: the number of hours the crew is on site at the power plant, and the number of probes consumed during the inspection.

“Our holy grail is to be so efficient that the only thing to interrupt the inspection is having to stop and replace probes,” says Don Williams, Vice President and General Manager, U.S. Nuclear Energy, at BWX Technologies, Inc. (BWXT) in Lynchburg, Virginia. “We apply a high degree of automation, robotic tooling, and other technologies so we’re in a position to maximize probe life and complete inspections in less time.”

For BWXT, a leader in inspection services for the nuclear industry, it’s a competitive advantage in this day of the Nuclear Promise, a commitment among companies that operate and service America’s nuclear energy facilities to reduce costs and improve safety.

“If we say we’re going to complete an inspection in a certain number of hours, almost without exception, we get it done for the customer,” says Williams. “Zetec technology is integral to how we deliver predictable performance and predictable costs.”

X-Probe™: Fast One-Pass Inspection

One example is BWXT's use of Zetec's X-Probe, a combination eddy current array and bobbin probe designed for "one-pass" steam generator tubing inspections at speeds 40 times faster than Motorized Rotating Pancake Coils (MRPC). The X-Probe is inspection-ready at purchase: EPRI equivalency reports have been created for all standardized X-Probe sizes; both the array and bobbin coils meet this equivalency and may be used for inspections of record.

"One important aspect of our system is that we use Zetec probes, robotics, test instruments, and software as a truly integrated inspection system," Williams says. "The ZR-100 robot is extremely accurate when centering on tubes, which helps us achieve better probe life by a factor of two or greater compared to competing systems. And we take full advantage of the MIZ®-80iD instrument's capabilities to throttle probe speed and to auto-detect tube ends, which can significantly reduce probe wear."

Probe durability can generate substantial savings.

"If your average probe life exceeds 3,500 tubes, you might feasibly use eight to 10 probes for an inspection. If your competitor's probe life is 875 to 1,000 tubes, they may consume upwards of 25 probes. You can see the impact of fewer probe changes in terms of inspection speed and efficiency, radiation dose, and overall costs," Williams explains. "One of our customers has OTSGs (once through steam generators) and our inspections there are down to about 58 hours—nearly half of what the customer might otherwise expect. We're talking about inspecting over 31,000 tubes in about two and a half to three days."

BWXT uses Zetec probes exclusively. "There's no other satisfactory supplier as far as we're concerned," Williams says.

RevospECT® Pro: Processing Power and Efficiency

To manage the large amount of data the system acquires, BWXT uses Zetec's RevospECT Pro automated analysis software.

For nuclear steam generator inspections, RevospECT Pro can be used in a primary or secondary role, or in a single-pass configuration, saving time and money during an inspection. Once it's configured, RevospECT Pro can process and analyze flaw-detection data at a rate that's often faster than the system can acquire it, and can generate results that can be verified immediately by a data analyst.

"This is labor-addressing technology," Williams says. "We can handle a single-pass analysis with two analysts per shift, plus lead analysts for oversight, where normally it would take a much larger team of people. RevospECT Pro gives us more control over how we deploy our resources."

Another key point is that eddy current inspection work goes on concurrent with refueling. Typically, the plant operator has to install nozzle dams in the piping in order to isolate the steam generators from the refueling activity. "We can get in and out so quickly that it alleviates the need for those nozzle dams, which has benefits in terms of costs and nuclear safety," Williams notes. "I'm not aware of anyone else who performs to that level."

A Complete Solution

Williams says Zetec instruments, probes, robots, and software create an integrated inspection solution where the sum is greater than the individual parts.

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Zetec holds ISO 9001
and ISO/IEC 17025
certifications



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