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## Customer Success Story: A Nuclear Plant Upgrade

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Using System 1\*, 3500 Encore and TDISecure, a nuclear power plant successfully upgraded its machinery protection and condition monitoring system for its Steam Turbine Generator and

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Reactor Coolant Pumps.

The combined capabilities of GE's Bently Nevada\* System 1 software, 3500 Encore and TDISecure hardware provided a reliable and complete asset monitoring and management system upgrade.

## **PROBLEM**

GE's Bently Nevada machinery and condition monitoring software have been operating at a nuclear power plant since 1996, with existing Bently Nevada 3300 systems in place. In order to provide a fully supported machinery protection and monitoring system for these assets, various upgrade paths were explored.

Additionally, commercial nuclear plants in the U.S. are required to provide high assurance that digital communication systems and networks are adequately protected against cyber attacks. There are specific requirements for nuclear power plants which guide facilities in complying with regulations. Condition monitoring solutions that involve software communicating with critical machinery protection hardware must comply with these regulations.

## **SOLUTION**

The Bently Nevada 3500 Encore system allowed the existing 3300 systems to be upgraded to current protection and monitoring hardware while keeping the racks themselves in place and all of the transducer wiring intact. Additionally, TDISecure units were put in place to acquire the analog signals from the 3300 systems upgraded with 3500 Encore protection hardware and to provide the necessary condition monitoring data to System 1 software in an accepted cyber secure architecture.

## **PAYBACK**

The solution that Bently Nevada put in place provided two significant benefits. By utilizing the in-place 3500 Encore upgrade for the existing 3300 Systems there was no need to change panel cutouts or re-wire transducer cabling, avoiding significant labor cost and installation time. The addition of the TDISecure hardware allows full condition monitoring and machinery diagnostic data sets to be available for these critical assets in System 1 software where it can be easily accessed by the machinery diagnostics and health monitoring experts as needed.

Using Bently Nevada's solution, the facility was able to upgrade existing Protection and Condition Monitoring infrastructure and integrate it in a cyber-secure architecture with Bently Nevada's industry-leading software platform, System 1.

## **BENEFITS**

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- **Comprehensive and affordable coverage** – System 1 provides a seamlessly integrated environment for all condition monitoring systems.
- **Cyber Secure System Architecture Complying with NEI 08-09** – through the use of TDISecure to provide a complete digital separation between critical machinery protection systems and System 1 software.
- **Optimized 3300 System Upgrade Path** – 3500 Encore provides the benefits of the latest Bently Nevada protection and monitoring hardware at the lowest implementation cost

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