Optimizing a steam turbine in Mexico thermoelectric power plant

HYTORC

COISA, the HYTORC distributor in Mexico, was called to work on the Presidente Plutarco Elías Calles thermoelectric power plant in Petacalco, Guerrero, Mexico. The company was looking to optimize the maintenance procedures on one of the plant's Mitsubishi steam turbine units.

Since the plant opened in 1993, the maintenance procedures for disassembling and reassembling the high-pressure turbine casings have remained the same. Approximately three days were required for loosening the nuts and bolts on disassembly and nearly the same amount of time was needed for reassembly.

The limited clearance of the Mitsubishi housing configuration presents a challenge for all hydraulic torque and tension bolting systems. The studs used on each of the turbines in this plant also proved difficult for disassembly. Because of the equipment operating conditions, disassembly required the application of heat with an open flame to the bolt sleeve/nut, covering the first two threads of the bolt for eight minutes per bolt.

Once the tool was connected to the HYTORC SmartStud, the actual assembly time was two minutes per bolt, fulfilling the initial project guarantees: No reaction arm, no impacting, hands-free work, ensuring the safety of the operator and the equipment with the same tool.

"This project resulted in an impressive savings in time while also providing a safer work environment," said HYTORC President Eric P. Junkers.

The project was overseen by the state-owned Comisión Federal de Electricidad (Federal Electricity Commission). This group organized the assembly procedures involving the use of a crane, the mechanical personnel handling the tools and the HYTORC technical personnel who supervised the bolting procedures to ensure safety and accuracy on the job. Additional care was required to ensure the existing bolts were not damaged during installation of the casing.

To achieve an even and accurate bolt load across the casing, the bolting sequence was a critical piece of the assembly procedure. The bolts were tightened in a pattern that started at the inside of the casing and worked toward the ends. The simplicity and speed of the HYTORC system allowed operators to work simultaneously on both sides of the casing to assure an even distribution of load. This led to an accurate bolt load on each of the casing bolts, resulting in improved efficiency and increased integrity of the casing.

"This application shows the value HYTORC can bring to any project, large or small," said Chief Operating Officer Jason Junkers.

For more information, email info@hytorc.com or call (800) FOR-HYTORC [367-4986]. ●

A HYTORC Nut is installed using the Avanti bolting system with an extended drive.