

Power Plant in Southern Florida Avoids Costly Shutdown With Emerson's Diagnostic Services

RESULTS

- Avoided eight hours of downtime
- Entire service visit took 90 minutes, greatly reducing maintenance costs



APPLICATION

Integrated gasification combined-cycle (IGCC) power plant

CUSTOMER

Power plant — Southern Florida

CHALLENGE

When engineers at a power plant in southern Florida discovered that the adsorbers in their state-of-the-art IGCC power plant would not pressurize, they immediately suspected a leaking valve.

The plant's air separator tower operates with four adsorbers, and each adsorber unit has four 24-inch valves and several smaller ones. Leakage in any one of these valves would degrade the air separator's efficiency. If the leakage required repair or replacement of the valve, the process would have to be taken offline, and the plant would have to revert to a more expensive raw material—petroleum distillate—to run the combustion turbine and continue producing power.

Each 24-inch valve and its actuator weighed roughly a ton. To remove one valve out of the line requires up to eight hours, six people, and a crane. The plant needed a reliable way to diagnose the leak to eliminate the unnecessary and difficult valve removal procedure.

“Using Diagnostic Services ultrasound technology, Emerson’s Fisher Lifecycle Services helped us avoid a six- to eight-hour shutdown. Otherwise, the repair would have required six people and a crane.”

Power Plant Maintenance Specialist

SOLUTION

Emerson Process Management's Fisher Lifecycle Services was called to perform a Valve Diagnostic Test using their Leak Detection tool — the CSI 7100 Machinery Health™ Scanner. With the CSI 7100, a probe is placed on the exterior of the valve. The device sends an ultrasonic frequency through the valve, which bounces back and is converted to sonic range. The Fisher Lifecycle Services technician is trained to distinguish the sound of a leakage in the mix of vibrations, line noise, and linkage sounds.

Only ten minutes after the technician's arrival, he identified two leaky valves as the sources of the problem.

Once the problem valves were identified, the technician and the plant's maintenance specialist took a closer look and discovered a surprise. "We saw that the stem linkages between the actuator and the valve had come loose," the technician said, "allowing the actuator to turn without affecting the valve."

The two leaky units had been recently repaired and reinstalled improperly by a third-party service provider. The Fisher Lifecycle Services technician reconnected the linkage.

In 90 minutes, the service visit was successfully completed, and the problem was solved.

Without the use of Emerson's Diagnostic Services to rapidly identify the leaking valves, the plant probably would not have found the improperly installed stem connectors. "Visually, the block didn't appear to be shifted. It would have been easily overlooked," said the plant maintenance specialist.

The plant would have had to shut down the air separator process to remove valves from the line for inspection and repair. The avoided maintenance costs include labor and equipment to remove valves from the line, loss of raw materials, and increased costs associated with the outage. The plant estimates the total cost of repairing one valve is equivalent to eight hours of downtime. By using Emerson services and technology, the plant was able to fix the problem without incurring additional maintenance costs or unnecessary downtime.

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Power Plant Maintenance Specialist

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