FSI Can Solve Your Pump Challenges.

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Background:
For many years it has been common practice to use braided packing in pumps. Unfortunately, there are several negatives to using this method. For instance, the packing must be consistently adjusted and there is usually some leakage. Leakage can cause safety hazards and eventually erosion. If the gland follower is over adjusted, it can cause the packing to wear or score the pump packing sleeve prematurely. This will eventually lead the packing to become ineffective causing a leak path between the packing and the worn sleeve. A preventative maintenance program should be in place where the pump is routinely monitored and kept in good running condition. If this is not the case, problems can arise. A powerplant in Mississippi was experiencing similar problems with their pumps.

Challenge:
The powerplant currently has twelve Flowserve Vertical Turbine Pumps most of which use braided packing. The leakage created by the braided packing was causing severe erosion to the stuffing box face where critical gaskets are used to seal. The pumps had to be continually repacked to stop the leakage that was occurring. Routine maintenance was scheduled every 2 to 3 years. Accessing the stuffing box and the worn sleeve required having a crane pull out the heavy motor so the stuffing box can be lifted between the motor shaft and the pump shaft. This can be a lengthy process, halting work that needs to be done. The plant was looking for a solution that would replace the braided packing, save time on labor, eliminate leakage, and lengthen the time between routine maintenance.

How We Solved the Problem:
The first step that FSI took was to reverse engineer the existing stuffing boxes to allow for the installation of our Type 52SS split mechanical seal. FSI is one of only two companies that manufacture a true two- piece split cartridge mechanical seal. Two-piece split seals offer many benefits including easier installation and removal for repairs. This seal also is a stationary design, which self-aligns to the out of squareness of the stuffing box to the shaft and is capable of over .040” TIR. This becomes critical as the line shaft bearings wear over time within the pump and shaft movement increases.

By providing stuffing boxes made of 304 stainless steel, we eliminated the erosion that was found with the existing carbon steel boxes. To further improve on the stuffing box, the existing bronze bushing was replaced with a PackRyt® bearing. Because of the material and design of the PackRyt® bearing, we are able to improve the shaft stability and wear.

With the new configuration of the leak-free Type 52SS split cartridge seal, stainless steel stuffing boxes and PakRyt® bearings from FSI, the customer eliminates the safety hazard of water around the pump and will no longer have to remove the motor to access the stuffing box. They can now change the split seal in place. The eradication of the shaft wear removes the need to replace the pump sleeve. In addition, the PakRyt® bearing stabilizes the shaft, which increases the life of the seal and lengthens the time between routine maintenance.

Our solution solved the numerous challenges presented and provided the customer with greater efficiencies and cost savings which positively affected their bottom line. It was so well received, other power plants started to adopt the same approach.

Experiencing challenges with your pump’s stuffing boxes or packing? Contact Lauren Morelli, FSI Marketing Manager at 412-865-2101 or lmorelli@worldfsi.net to learn how we can engineer a custom solution for you!