Case Study

Electro Mechanical Services

Summary

POSITIVE RISK REDUCTION

Industry:	Water and Wastewater
Application:	New Drive Design
Actual Saving:	Estimated £30,000
Payback Period:	2-3 Years

Picket Fence Thickener Failure

ERIKS repairs and redesigns Picket Fence Thickeners with an innovative solution

ISSUE

A London Water Authority contacted ERIKS to refurbish one of the existing Picket Fence Thickeners onsite at a sewerage treatment works.

ERIKS' initial assessment found that the existing drives had installed on them a worm gearbox controlled with a fitted torque limiter.

The Picket Fence Thickeners were consistently failing due to the tanks being regularly overfilled with sludge and the slewing rings becoming contaminated, resulting in complete seizures of the rolling element raceways. The existing torque limiters were also seizing in place due to the atmospheric conditions, once this occurred the mechanical protection of the drives became non-operational and the electronic overload limits were then activating.

The plant operators presumed the plant was nuisance tripping and as a result they would increase and bypass the overload limits. This they deemed as a necessity to continue the operation of thickened sludge production. The end result is the slewing rings would collapse and the entire PFT roofing structures would sag making the plant completely redundant.

OUTCOME AND BENEFITS

ERIKS came up with a complete innovatoive solution to the issue of sludge contamination by raising the slewing rings.

Another benefit to the customer was the replacement of the existing driving gearbox with a planetary drive which increased the torque output but also increased the efficiency of the unit, reducing energy costs and carbon emissions too.

SOLUTION

ERIKS Dartford determined the best course of action was to eliminate the contamination and raise the slewing rings so as to clear the contamination completely.

In order to complete this two new supporting spool pieces would need to be fabricated. The existing

driving gearbox was also old and it was recommended to change this to a new planetary drive so as to increase the torque output and efficiency of the unit. The torque limiter was replaced with a new Mayr internally sealed FTL series, with a manual resetting feature so as to avoid tampering of the protection by the operators.

The slewing rings were manufactured and supplied new and the existing greasing system was removed and replaced with a positive displacement powered grease dispenser.

To incorporate the new design the entire supporting structure was required to be raised, a newly fabricated supporting frame was also needed.

ERIKS removed the existing drive using contract crane lifts, the adaptor plate to mount the slewing ring was also removed and newly fabricated. The new slewing rings were installed by the means of two separate spool pieces designed and fabricated by ERIKS. Once this was completed the newly fabricated walkway structure was placed on top and the electrical connections established along with the lubrication system.

The completion of this project enabled the continued production of thickened sludge for the Sludge Powered Generator (SPG) to enable the production of electricity to continue onsite.

MORE INFORMATION

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