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Material Upgrades Lead to Lower Maintenance Costs

Problem: A steel mill had shut down production due to the pandemic. While production was halted, the plant took the opportunity to send its 20-stage vertical pump to Hydro Rocky Mountain for some much-needed inspection, maintenance, and quality repair.

The application for this pump requires repeated cycling, on and off, which can be hard on the design, and over its life cycle, Hydro Rocky Mountain had performed numerous repairs on this unit as well as its sister pumps. This line of pumps was originally built in the 1950s, with four-part cases forged out of cast-iron. Because of the metallurgic properties of cast-iron, any build-ups or welding to the case required the addition of brass inlays, in addition to excessive machining.

As the price of brass increased, so did the cost of repairs, and upon the pump's most recent return to Hydro Rocky Mountain, the price of brass coupled with the amount of brass required to complete the job meant that the cost of the repair would be almost as much as casting a whole new case. In this instance, Hydro Rocky Mountain recommended the latter, to ensure a long-term solution for the customer.



Solution: Hydro Rocky Mountain's Denver facility is part of the Hydro, Inc. worldwide network of service centers, and because of that, the facility was able to work with Hydro Parts Solutions in Houston to develop a comprehensive casting scope. This plan would not only provide the customer with a newly machined case with tolerances brought back up to original specs, but it would also provide a case cast out of carbon steel.

The customer opted to proceed with Hydro Rocky Mountain's plan to replace the case with upgraded materials. Hydro Rocky Mountain sent the case to Hydro Parts Solutions to be reverse engineered and cast with a quick turnaround. After the case was cast and machined, it was returned to Hydro Rocky Mountain to be mated with its rotor, which was simultaneously being repaired and re-machined in the shop. Once the pump was reassembled and inspected, it was returned to the customer ready to return to service as soon as production resumed.



Benefit: An upgrade or change in metallurgy can extend a pump's mean time between repairs. Hydro's engineering team will evaluate the metallurgy of your pump components and recommend material upgrades specific to your pump's application.

In this case, carbon steel served as an optimal metallurgical upgrade for both long-term maintenance and repair, and will prevent potentially expensive repairs in the future. Following this order, the steel mill opted to send a batch of sister pumps to Hydro Rocky Mountain for additional castings and repair.