



GEOHERMAL POWER WELLHEAD VALVES





With the demand for renewable energy continuing to increase, geothermal power is quickly becoming a focal point in generation company portfolios. Producing about one-sixth of the carbon dioxide emitted by a clean natural gas fueled plant, geothermal energy production ensures a sharp reduction in greenhouse gas emissions. There are three types of geothermal power designs-dry steam, flash and binary cycles.

Regardless of plant design, everything begins at the wellhead. Often separated from the plant by significant distances, production wells include Emergency Shutoff Valves (ESVs) and flow control valves-both of which play key roles in the process. Therefore, they need to function reliably to ensure no interruption of the flow of steam or brine to the plant.

A geothermal power plant in New Zealand recently experienced unstable control of their production wellhead valves and sought out REXA for a solution. The previously-installed pneumatic actuators were not able to accurately control the valves during both start-up and normal operation. This caused large pressure swings in the process and immense water hammer down the line, which on two separate occasions led to bending pipework and broken pipe brackets.

Leaks within the valve's stem packing required tightening, making it even more difficult for the pneumatics to overcome the additional packing friction. This negatively affected the pneumatic actuators positioning accuracy resulting in frequent overshoot and correction which lead to water hammer.

This plant needed a solution, and they needed it quickly. Luckily, they already had REXA Rotary Actuators installed on their emergency dump valves! These were used to overcome brine build-up on the disc of the butterfly valves, which helped assure them REXA could overcome any stiction problems on the production wellhead valves. For this reason, as well as the fact that the electro-hydraulic set up of REXA Actuators provide more accurate and reliable control than pneumatics, this plant successfully installed three REXA Xpac Linear Actuators!

Since the initial installation in March 2019, our customer has greatly improved their control of the production wellhead valves with no more large swings in the process. Water hammer down the line is now a thing of the past.

“Upgrading from pneumatic actuators to REXA Electraulic™ actuators provided a much-needed solution, allowing us to achieve better control of our wellhead valves.” – Plant Manager

Before



After





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