

IMI Critical solves wet steam erosion at Korean CCPP

The Challenge

The operator of a Korean Combined Cycle Power Plant was experiencing excessive erosion to the trim of its turbine bypass valve, due to high levels of condensation.

The condensation was occurring because the plant was starting up and shutting down more frequently, as it was providing baseload power when energy from renewable plants could not meet demand.

The erosion to the trim, and associated problems with adjacent piping, were resulting in unplanned shutdowns of the plant and operational losses.



Erosion was present in the plug and cage.

The Solution

The client turned to IMI Critical Engineering to help find a solution to the problem. A team of expert engineers from IMI Critical Engineering visited the client to analyse the problems before recommending an upgrade to its proprietary EroSolve Wet Steam solution.

EroSolve Wet Steam was developed specifically by IMI Critical Engineering to delay erosion and extend valve life in wet steam operating conditions, and will also reduce maintenance and other associated costs.

The customer was initially uncertain about upgrading to a solution that had never been installed in Korea before. However, after IMI Critical Engineering's expert engineers were able to demonstrate the technical advantages of EroSolve over other solutions, the customer agreed to the upgrade.

In just a fortnight, IMI Critical Engineering's field service team in Korea, working with colleagues from IMI Bopp & Reuther, completed the installation and testing. The valve has been operating perfectly ever since.

"After the upgrade with EroSolve Wet Steam solution, we could see the valves are continuously working in good condition without any damage or leakage," a plant engineer confirmed. "The result is far beyond our expectations."

The success of the EroSolve Wet Steam upgrade has given the client even greater confidence and trust in IMI Critical Engineering. "It was not easy for us to make a decision to install a new solution such as EroSolve," the engineer added. "However, it solved our critical problems and helps strengthen our trust with IMI."

That trust has also generated new business: the client has subsequently chosen to IMI Critical Engineering's state-of-the-art Retrofit3D solution to upgrade a feedwater system valve.

Retrofit3D uses additive manufacturing to custom-design valve trim for challenging applications and operating conditions. Through Retrofit3D and EroSolve IMI Critical Engineering combines its traditional engineering expertise and manufacturing techniques with state-of-the-art digital tools to find solutions to acute customer problems.



The IP Bypass valve in great condition after the upgrade.



Customer explaining how the valve works.



The IP Bypass valve following the upgrade.