ABB MEASUREMENT & ANALYTICS | CASE STUDY

Largest ABB packaged analyzer system ensures water quality for Mexico power station

GE Power relies on ABB packaged analyzers to guarantee water and steam quality in its power station projects across the world

ABB has supplied its largest ever packaged steam and water analysis system (S.W.A.S) for a power station project in Mexico. Supplied fully-integrated in an 18-meter-long container, the system provides a dedicated facility for monitoring the quality of the water and steam from around the power station's generation and distribution plant.

Installed at the Energia Valle de Mexico power plant, an 850 MW gas fired power station built by GE Power near the capital Mexico City, the packaged system is one of 70 that ABB has built for GE Power for use in power station projects around the world. The system provides dedicated measuring facilities for each water sample line, avoiding the inaccuracies that can result from sharing measurement instruments between lines.

Daniel Mueller, Gas Plant Engineer for GE Power, specified the analysis package. "The need for rapid availability and accuracy of continuous measurement values was driving the decision to have dedicated instruments for each required measurement parameter, rather than switching them between sampling lines. This is part of a philosophy to make the system faster and more accurate. Switching between sampling lines may result in peaking of data readings that take some time to settle down. This leads to inaccuracies and unreliable results.

"To achieve this, we needed a package that could contain all the equipment in one cabin. We needed an 18-meter-long cabin and ABB was the only vendor that could deliver what we wanted."

All the instrumentation used is fully-matched, with all equipment – including pH, conductivity, dissolved oxygen and sodium analyzers – having been manufactured by ABB. Together, the various devices continuously monitor the key parameters that can impact on the performance of both the boiler and downstream power generation plant.

ABB's Navigator 600 Silica analyzer, for example, accurately measures concentrations from 0 to 5,000 ppb and substantially cuts the costs and maintenance associated with monitoring silica. If left unchecked, silica can accumulate in both the boiler and steam turbine, reducing performance and increasing the risk of premature component failure. ABB's ASO550 and ADS551 on-line analyzers are used to monitor sodium and dissolved oxygen respectively. ABB's equipment is also used to minimize boiler corrosion.

The scope of supply for the project also included other ancillary equipment from ABB such as enclosures, MCBs, terminals, relays, switches and isolators, PLCS, and Control Systems.

The site supplies various sample lines to the cabinet at temperatures of up to 580°C and a pressure of up to 180 bar. The onboard conditioning and chiller system in the cabinet reduces the sample temperature and pressure to make it usable for the analyzers.

All ABB steam and water analysis systems are built as complete turnkey 'plug and go' systems, which significantly cuts the time, cost and disruption associated with installation. Once delivered to site, the customer just needs to connect the power and signals cables, cooling water connections and sample lines to make the system ready for operation.

Keith Rickards, Design Engineer for ABB, says: "GE Power has worked with us over many years on over 70 analyzer systems. They know we can make changes when needed and can always meet their timescales for the project. We have met the client deadline for every project."

Says Daniel Mueller: "We know that ABB engineering is very robust, that they will stick to the specification and that they can fulfill the order rapidly. They are often the only vendor ready to receive an order and can also supply what we need at the best price."

For more information, visit www.abb.com/measurement. Alternatively, email instrumentation@gb.abb.com or call 0870 600 6122 ref. 'ABB packaged SWAS systems'.

ABB's Measurement & Analytics business line (www.abb.com/measurement) is one of the world's leading manufacturers and suppliers of instrumentation and analyzers. With thousands of experts around the world and high-performance technology, ABB's team is dedicated to making measurement easy for its customers.

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader with a comprehensive offering for digital industries. With a history of innovation spanning more than 130 years, ABB is today a leader in digital industries with four customer-focused, globally leading businesses: Electrification, Industrial Automation, Motion, and Robotics & Discrete Automation, supported by its common ABB Ability™ digital platform. ABB's market leading Power Grids business will be divested to Hitachi in 2020. ABB operates in more than 100 countries with about 147,000 employees.

ABB Limited
Measurement & Analytics
Oldends Lane, Stonehouse
Gloucestershire, GL10 3TA
UK
Tel: +44 (0)1453 826 661
Fax: +44 (0)1453 829 671

abb.com/measurement

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