

Power Plant Meets EPA Emissions Requirements While Increasing Steam Production

RESULTS

- Cost-effectively met EPA emissions requirements
- Lowered maintenance costs
- Increased levels of steam production



APPLICATION

A power plant uses Number 6 fuel oil as a backup fuel in its steam boilers when natural gas supplies are curtailed or prices are high. The fuel oil feed to the boiler is metered as part of the boiler control system. Comparing total fuel usage with steam output provides a good indication of boiler efficiency and the need for boiler maintenance.

In addition, the plant is able to meet EPA requirements for monitoring SO₂ emissions by reporting total fuel oil consumption as part of the EPA regulation 40 CFR Part 75 Appendix D. It is important that this fuel oil consumption measurement be accurate, since the plant's steam production is controlled by it. If the measurement is incorrect, the plant might either unnecessarily restrict its steam production or risk a fine for excess SO₂ emissions.

CHALLENGE

The plant was using positive displacement meters to measure fuel oil consumption. The positive displacement meters required frequent maintenance of their moving internals. Redundant meters were installed in order to keep steam production running during repairs.

However, even when the positive displacement meters were operating, their susceptibility to changes in fuel oil density and viscosity made the accuracy of their measurements unreliable.

SOLUTION

The power plant replaced its positive displacement meters with Micro Motion® Coriolis meters. Coriolis meters measure mass flow directly, so they are not affected by changes in process density or viscosity. This results in a much more reliable measurement of fuel oil consumption without recalibration requirements.



Micro Motion metering solution



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POWER

As a result of the changeover to Coriolis technology, the plant was able to control its boilers with confidence that they were neither curtailing efficiency nor exceeding emissions limits. In addition, because Micro Motion meters have no moving parts in contact with the flow stream, the maintenance requirement was virtually eliminated. The Micro Motion meters required no maintenance other than the EPA-mandated verification every five quarters.

