

Greater control over emissions

Suez improves process efficiency and environmental compliance



Suez recycling and recovery UK is one of the country's leading providers of innovative recycling and waste management services. The company employs more than 5,500 people in the UK and has been managing waste for local authority and business customers since 1988. Among other sites, Suez currently operates two energy-from-waste facilities and a household waste recycling centre at the Haverton Hill Industrial Estate in Billingham.

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Scott Almandares
EC&I Engineer
Suez



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CP100 Combiprobe system

The challenge At Suez's energy-from-waste plant in Billingham, UK, household waste is fed into a furnace at temperatures strictly maintained above 850°C to ensure it burns completely and safely. The intense heat is used to generate high-pressure, superheated steam that is piped into a turbine to generate electricity for export to the power grid.

To comply with stringent limits on emissions and optimise processes, Suez has to closely monitor the whole energy-from-waste process. First, the acidic flue gas that results from the burning process has to be neutralised with lime and ammonia before being released into the atmosphere. The quantity of additives is closely monitored for process control and cost purposes. After treatment the neutralised gases are passed through a highly efficient bag filter to remove the particulate matter before being sent up the chimney stack.

The stack emissions must be closely monitored in accordance with limits defined by the Environment Agency.

"We're a 24-hour, 365-day operation," says EC&I Engineer Scott Almandares. "If we lost monitoring of the emissions, we'd be shut down within hours."

The solution The Suez Billingham plant is split into three distinct lines. On Line 3, an MCS300P raw gas analyser is used to control dosing of the chemical reagents added for flue gas abatement. The neutralised flue gas is then monitored via a continuous emissions monitoring system (CEMS) on all three lines comprising the MCS200 and Combiprobe CP100. The MCS200 emission monitoring solution checks what goes to atmosphere by extracting the flue gas and measuring it in an analyser. This system avoids corrosion by heating the entire gas transfer path to a temperature above the dew point, which prevents condensation.

On the stack itself, the Combiprobe CP100 measures dust, flow, temperature and pressure all in one combined device. With only a single mounting requirement, there is



EC&I Engineer Scott Almandares and E&I Maintenance Technician Joe Wilson with the MCS200

considerably less outlay on installation than if the individual components were to be installed separately. All of the devices are MCERTS accredited, demonstrating that they can accurately monitor emissions and meet environmental regulations.

The benefits Controlling the dosing of lime and ammonia using the raw gas analyser optimises chemical use, minimises waste and ensures strict compliance with environmental emissions laws. “The benefit for the plant is having more reliable data and more upstream control over your dosing systems,” confirms Scott Almandares. “It improves efficiency because you have a clear view of the gas before it leaves the stack and can be proactive rather than reactive.”

From an environmental perspective, the post-abatement CEMS verify that

the gases are safe to be released to the atmosphere. The MCS200 continuously tracks and archives data for up to 12 gas components, including key pollutants such as nitrogen oxides (NO_x), sulphur dioxide (SO₂), carbon monoxide (CO) and carbon dioxide (CO₂). This ensures the gas released from the final stack meets the Environment Agency’s statutory daily and half-hourly Emission Limit Values (ELVs) under the Industrial Emissions Directive.

Using SOPAS software, Endress+Hauser engineers can access the CEMS remotely for commissioning, configuring and troubleshooting. “Having that dial-in aspect is really good for diagnosing faults,” says Scott. “We didn’t have that option before with our old CEMS analysers, so it allows us to rectify faults a lot quicker than before.”



Monitoring chimney stack emissions

Due to the success of the raw gas analyser on Line 3, Suez is considering installing additional MCS300Ps on Lines 1 and 2. Together, the measurement solutions give Suez greater visibility and control across the energy-from-waste process – from optimising reagent dosing to continuously verifying emissions at the stack. With reliable, accessible data supporting both process efficiency and regulatory compliance, the systems are helping the Billingham plant operate more proactively and with greater confidence.

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