Steam system expertise helps GTM get biosolids treatment going for Anglian Water

Steam and hot water systems from Spirax Sarco are helping Anglian Water treat sewage sludge at two new biosolids treatment works in Kings Lynn and Great Billing. The projects are two of four ground breaking schemes planned by the utility company to reduce biosolids volumes, increase quality and generate energy in the process. This innovative process will not only make the centres self-sufficient but will annually export up to 1MW back to the national grid.

Spirax Sarco expertise was brought in to provide consultancy on the specification, design and installation of the steam systems for both sites. An array of Spirax Sarco specialists in condensate recovery, steam trapping and water treatment worked in partnership with the projects' contractors to design an easily maintainable system with minimal downtime.

"We didn't have a great deal of experience with steam systems," says Imtech Process Engineer Adrian Jaques. "So we contacted Spirax Sarco and designed the scheme together with them. They were knowledgeable, good to work with and very helpful throughout the projects. In fact I can't praise them enough."

Spirax Sarco supplied boiler feedtanks and all the steam equipment associated with the standby, oil-fired steam boilers at both Kings Lynn and Great Billing. These boilers are used during start-up and also during very cold weather when they are sometimes needed to supplement the steam from the CHP plants' waste heat boilers.

The company also supplied steam-to-hot-water EasiHeat™ systems to provide standby hot water for both sites. The Spirax Sarco systems are predominantly used during start-up, providing steam and hot water to drive the treatment processes.

'Spirax Sarco were knowledgeable, good to work with and very helpful throughout the projects. In fact I can't praise them enough'

Both projects have been built by Imtech as part of the Galliford Try Imtech Process (GTM) consortium. The Kings Lynn plant has now been operating for almost a year, processing sludge equivalent to around 19,000 tonnes a year of dry solids. The Great Billing plant treats 38,700 tonnes of solids a year.

Kings Lynn biosolids treatment works.

Although they vary in size, both sites operate similar processes to treat the sewage sludge or biosolids, which are a by-product of waste water treatment. First, the sludge is heated by hot water to 42°C and hydrolysed to break up some of the bigger molecules. It is then steam heated to 55°C to pasteurise it and destroy any pathogens. Micro-organisms continue to break down the pasteurised sludge even further in an anaerobic digestor, where they convert a substantial proportion of it into biogas. This biogas fuels an onsite combined heat and power (CHP) plant, which generates electricity, steam and hot water.

The result is a 40% reduction in the volume of sludge. It is also free from pathogens such as Salmonella and E. coli and can therefore be used safely by farmers as a fertilizer.

Spirax-Sarco Limited
Cheltenham UK
GL53 8ER
t: +44 (0)1242 521361
f: +44 (0)1242 573342
ukenquiries@SpiraxSarco.com
www.SpiraxSarco.com/uk