

From plant commissioning to troubleshooting and performance enhancement

Case Study - Eco Park Surrey

Developing a holistic strategy to provide plant and process improvements

The issue

The innovative facilities of Eco Park Surrey were built between 2015-2017. They were constructed to process household waste to generate power for the national grid, enable recycling and reuse as well as to provide fertilizer for farming; thereby supporting a sustainable planet agenda. As each facility at the Eco Park was completed it underwent a period of commissioning to ensure it operated in the way it was designed and as efficiently as possible.

The Eco Park team approached Aqua Enviro to provide technical and commissioning support. Aqua Enviro, a SUEZ company, reviewed a wide range of issues that required attention – grit accumulation in the anaerobic digesters, plastic contamination of the biofertiliser, power generation downtime due to H₂S presence in the biogas, struvite and sub-optimal digester performance.

As an initial step the team began daily on site sampling and analysis to develop performance benchmarks against which the benefits of our interventions could be assessed.

Examples of the subsequent remediation activities include:

- Performance enhancement using FMEA (failure mode effect analysis) studies
- A full review of the plant design
- Recommendations to procure and incorporate additional systems, with additional commission support
- The plant capacity was enhanced by implementing a system upgrade to a MBR (membrane bio reactor)
- Addressing the struvite scaling issues in order to enhance operational life of the plant as well as its reliability while at the same time reducing maintenance downtime.



The solution

Aqua Enviro brought together a team of technical experts to develop a holistic strategy to address the various issues.

The role grew through the project from one of 'hands off' advisory role to become fully integrated into the day-to-day management and operation of the plant and its process.

Key deliverables

✓ Enhanced plant throughput	✓ Reduced operational costs
✓ Maximised power generation	✓ Reduced waste disposal and emissions
✓ Enhanced digestate cake quality	✓ Reduced struvite scaling
✓ Optimised plastics removal	✓ Reduced maintenance downtime



The results

- Enhanced plant capacity by 50%
- Reduced environmental emissions and costs by removing the need to tanker up to 100m³/d of waste for off-site processing
- Takeover test requirements of 40,000 tonnes of waste processed per annum were met
- Client saved c.a. £1.1 million from reduced waste tankering over 9 months
- Reduced maintenance downtime by 30%
- Process steps for removing plastics were optimised, enhancing the quality of the final biofertiliser product
- Short and long term strategy to mitigate H₂S presence thereby overcoming power generation issues.

Differentiating factors

Aqua Enviro has the breadth of sector expertise and capabilities which enables them to rapidly adapt the support to each client's situation as it evolves.

“

Great approach to problem solving with a desire to work in partnership with the client.

-Justin Hampton, Plant Manager, Eco Park Surrey

The consultancy has a highly collaborative approach working with the client's teams, data provision and facilities. They provide strategic, technical and operational guidance to ensure their client achieves their goals be they sustainability, financial & operating efficiencies and/or regulatory and contractual compliance.

The future

The Aqua Enviro consultancy team has a long standing relationship with Eco Park Surrey continuing to provide remote data and performance monitoring to ensure the continued delivery of all technical and commercial objectives.

About Eco Park Surrey

The Eco Park is an innovative new development of facilities to treat residual waste from households in northern Surrey in a sustainable way, together with food waste from homes around the county and a small amount of waste from local businesses.

About Aqua Enviro

Aqua Enviro is a specialist technical and site services consultancy with over 20 years of experience in the waste and wastewater sectors. As well as working with all the major UK water utilities, Aqua Enviro, a SUEZ group company, boasts a team of technical experts working across a range of sites from municipal wastewater treatment works to waste-to-energy sites to chemical plants. All our site work is undertaken in a professional manner, with the highest safety standards in mind.

About SUEZ

SUEZ is a major player in environmental services. For almost 160 years, SUEZ has supported local communities and industrial companies in the management of essential services such as water, waste, and air quality. As such, SUEZ produces drinking water for 66 million people worldwide, recovers 2 million tons of secondary raw materials per year, and generates 3.1 TWh of renewable energy from waste. In our ongoing management of the ecological transition and climate change challenges, SUEZ will rely on the expertise and commitment of its 35,000 employees (particularly in France, Italy, Central Europe, Africa, Asia, and Australia) to offer high value-added and customized environmental solutions to all its customers.



Aqua Enviro

8 Appleton Court, Calder Park, Wakefield WF2 7AR

Phone: +44 (0) 1924 242255

www.aquaenviro.co.uk