

ENERGY & ENVIRONMENT

Advanced thermal conversion facility

Innovation is one of the key driving forces of the Yorkshire Water business. Allowing it to deliver more at the same time as keeping costs down. This £3m energy from waste project is just one example of the innovative measures Yorkshire Water is developing to reduce their carbon footprint and ensure the resources available are maximised.

BACKGROUND

The project's objective was to facilitate the generation of;

- Fuel pelletisation of dried sewage sludge and screenings
- Drying of sewage sludge utilising waste/recovered heat from the process
- Gasification of biomass
- Power and heat generation of renewable energy



SCOPE

RB Group was engaged to take on the responsibility of overseeing various aspects of the project, including site management, the revision of existing site documentation, the development of process improvement designs, and the implementation of process safety and compliance measures.



To document the existing site including:	Process improvement design work including:	Compliance works including:
✔ PIDs generation ✔ control philosophy creation ✔ O&M centralisation	✔ Pellet plant reconfiguration ✔ Scrubber optimisations ✔ Heat recovery system installation ✔ Thermal Oxidiser Unit (TOU) optimisation ✔ Process expansion	✔ HAZOP studies ✔ Basis of safety document creation ✔ IPPC creation ✔ LOPA studies / SIL assessments ✔ HAC development and compliance

RB Group provided us with expert professional engineering support throughout this project. Culturally their engineers seamlessly integrated into our single team and were key contributors to the success of the project. We expect this to be the start of an ongoing relationship as our technology is deployed throughout the UK

CHALLENGES

RB Group addressed numerous process optimisation and safety challenges with the following technologies:

- Fuel pelletisation of dried sewage sludge and screenings
- Drying of sewage sludge utilising waste/recovered heat from the process
- Gasification of biomass.
- Power and heat generation of renewable energy

THE SOLUTION

RB Group successfully met all project deliverables and milestones within the allocated budget and timeline. The completed project emerged as a pioneering facility in the sector, excelling in energy production and emissions control, setting a benchmark for future endeavours.



THE BENEFIT

While being operated as a R&D plant, in CHP mode it amassed ~10,000 hours on Jenbacher 612 engine, and approx. 3.2 GWh of power was delivered to Yorkshire Water’s nearby sludge works, residual heat being used for sludge drying needs.¹

¹<https://www.etgas.eu/our-projects>



ABOUT RB GROUP

RB Group provides professional engineering consultancy, design, project, and construction management services across a wide range of sectors from Pharmaceuticals to Heavy Engineering – applying vision, purpose, and cutting-edge expertise.

We undertake every stage of a project lifecycle from initial conception to commissioning, both globally and within the UK.

Our highly skilled and qualified Process, Mechanical, Civil and Structural, HVAC, CDM, Electrical, Control & Instrumentation Engineers undertake engineering projects of all sizes. These range from smaller scale projects such as plant modifications, expansions,

and upgrades, through to multi-million construction projects. We apply the same levels of client focus and professionalism to every project, regardless of size.

Our high proportion of repeat business coupled with an organically growing new customer base is no accident and reflects our unique approach that make us stand out in the market-place.



FIND OUT MORE

- ✓ Our experienced engineering team could support you on your next project. Why not contact Genghis Perriman our Business Development Manager to discuss further for a no-obligation discussion?

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