Overview
The Sludge Balanced Asset Programme (SBAP) project created an innovative, sustainable renewable energy plant at Davyhulme Wastewater Treatment Works (WwTW) in Manchester, providing United Utilities with a strategic and ‘state of the art’ regional processing centre which maximises the use of existing assets and generates renewable electricity enabling United Utilities to become self-sufficient in terms of sludge treatment.

Waste reduction
With volumes of sludge increasing from newer wastewater treatment technologies, United Utilities wanted to control their reliance on arable land for sludge disposal, plus reduce their carbon footprint. The large amount of sludge Davyhulme WwTW processes means there is significant potential for energy production through the combustion of biogas (generated from the digestion process used to treat the raw sludge). Compared to traditional digestion methods, a higher quantity of biogas production can be achieved by utilising Thermal Hydrolysis Plant (THP) technology.

THP technology is a high pressure steam pre-treatment for anaerobic digestion (AD) of sludge which maximises the energy yield from sludge and also allows product disposal to grass land.
Global expertise

MWH Global has been a key partner of United Utilities PLC since 2000, providing a range of programme management, and project delivery services. Coupled with MWH’s expertise in wastewater treatment, sludge and CHP technology, MWH were able to draw on significant global expertise to assist United Utilities in the implementation of the project.

Project outcomes

The project delivered the desired outcomes – It provides a sustainable outlet for sewage sludge, minimises CO2 emissions, delivers several million pounds of annual operational savings and was constructed with over 700,000 man-hours worked without a RIDDOR accident.

Energy targets set for the project have been exceeded to date, with SBAP producing around 38,000m³ of biogas daily. Enough energy is generated to off-set the entire power needs of Davyhulme WwTW.

Another aspect of the client’s brief – diverting at least 85% of waste away from landfill – was met by reusing surplus excavated material in an on-site landscape mound, with benefits of reduced landfill and associated transportation.

Using shared collaboration tools, design review, programme management and costs were managed effectively, ensuring design requirements were met whilst allowing significant progress to be made on construction.

Biogas production since the implementation of the scheme has increased by over 300% effectively making Davyhulme WwTW energy neutral.

About MWH Global

MWH Global specialises in strategic consulting, technical engineering, environmental and construction services for clients in multiple industries. We partner with our clients in Building a Better World, providing a full range of services for projects and programmes. Follow us at mwhglobal.com, @MWHGlobal or facebook.com/mwhglobal.

Phil Sweeney, United Utilities Area Business Manager

The team demonstrated several outstanding attributes which mark them out above others:

Innovation – the team delivered a process plant which is not only new technology to United Utilities, but also the largest of its type in the world. The team used collaborative tools and engaged end users.

Integrity – the work undertaken to build stakeholder confidence was extremely important and a challenge that the team really rose to meet.

Customer – I felt that the team recognised the importance of a smooth handover and were proactive in not only planning for it, but also gave an extended period of assistance in ‘aftercare’.

Phil Sweeney, United Utilities Area Business Manager