

THE CLIENT

United Utilities (UU) are the 2nd largest water company in England / Wales. They are responsible for an area in the north west of the UK, which includes major cities such as Manchester and Liverpool.

THE WORKS

Blackburn WwTW is located near Preston in Lancashire. Between 2005 and 2010 UU committed to investing in the Blackburn area to prevent sewer flooding, sewer overflows into local rivers and streams and to improve the local wastewater treatment works.



Biostyr Plant Aerial view

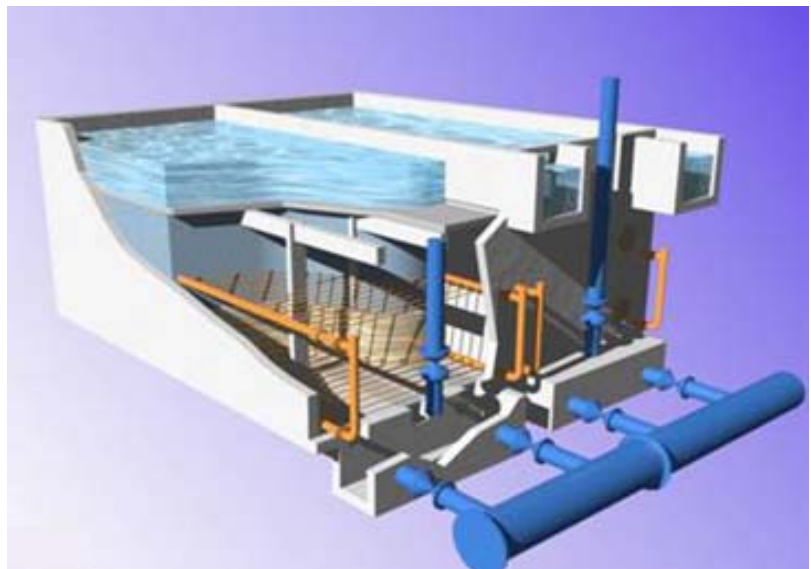


THE BIOSTYR® PROCESS

The BIOSTYR® is a highly compact process, which in a single structure allows for the biodegradation of all carbonaceous and nitrogenous pollution together with clarification of the effluent by filtration through the compact buoyant BIOSTYRENE® media bed. Process air is introduced at the base of each unit when required. Oxygen enables the media bed to sustain the ideal environment for biological activity.

PROJECT OVERVIEW

As part of the overall improvement to the site at Blackburn, VWS secured the final phase of the works for the supply of a new tertiary nitrification Biostyr BAFF plant. The design was completed for the main contractor KMI acting as principal contractors for United Utilities. Due to the restricted space on site and the requirements for the plant to be gravity fed, the BAFF plant is partially buried comprising 6 cells of 84m² with an underground technical gallery.



THE CONTRACT

VWS were sub-contractors and were responsible for all aspects of the process and M&E elements of the project.

Value: £2.9m

Award: September 2007

Biostyr plant – Inlet Feed Pipework



Biostyr Treated Water Outlet Channel



DESCRIPTION OF BIOSTYR® PROCESS PLANT

The plant at Blackburn is designed to treat an FFT up to 85MLD with 95% ile spot sample consent of 1mg/l Ammonia, 12mg/l BOD and 25mg/l TSS. The 1mg/l 95%ile spot sample guarantee on Ammonia is the lowest contractual consent the Biostyr process has yet achieved in the UK.

Our scope of works includes all the strategic M&E equipment for the Biostyr plant including the MCC/PLC and full mechanical and electrical installation.

To ensure that the outlet consent is achieved we must maintain a healthy biomass within the filter bed even during low inlet ammonia concentrations. To achieve this, an ammonium sulphate (40% solution) dosing plant has been installed as part of the VWS scope of works. The dosing plant is automatic and is utilised at times of low inlet pollution to the BAFF plant to provide a minimum ammonia influent concentration of 3mg/l to the BAFF plant to ensure a healthy biomass is maintained.

The BAFF plant includes an automatic maturation system, which diverts the treated water from the cell that has just completed its wash sequence to the dirty washwater tank for a pre determined period to allow the filter bed to re-compact and thus provide optimum filtration before being returned to online service.

Influent Criteria (24hr composite values):

	<u>Ave</u>	<u>95%ile</u>
BOD	10.4	17mg/l
TSS	24.5	52mg/l
Ammonia	1.7	3.3mg/l

Treated Effluent Consents: (95%ile spot samples)

BOD	12mg/l
TSS	25mg/l
Ammonia	1mg/l

Influent Flow Data:

DWF flow:	625 l/sec
Average flow:	806 l/sec
Maximum flow:	984 l/sec