

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

Davyhulme is the largest treatment works operated by UU and is located near Trafford Park in Manchester handling a flow rate of 375,000 m³/d from a population equivalent of 1,500,000.

PILOT TRIALS

In order to provide confidence to the potential Client, VWS installed and operated a ½ cell (63m²) pilot plant on the site from 1992 to 1994.

Following the successful trial period and pre-design phase, United Utilities placed the contract with VWS for the Design and Build of the full tertiary treatment works in June 1995.

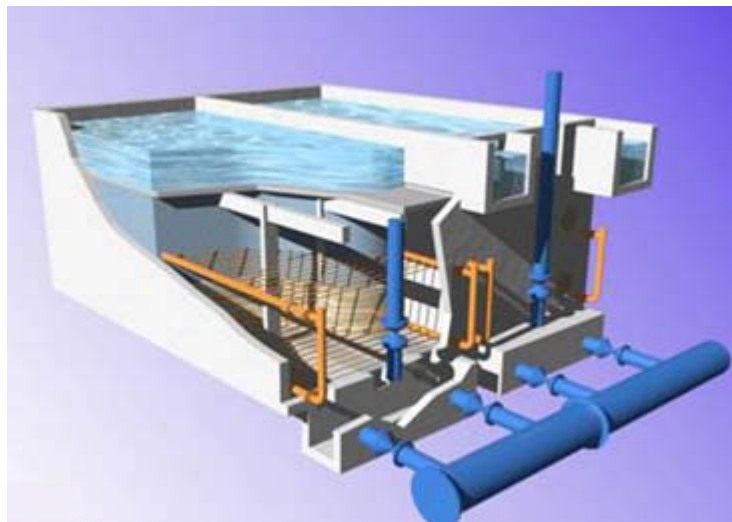


THE BIOSTYR® PROCESS

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

The project requirement was for the provision of a nitrification plant for the removal of ammonia to comply with EA directives. The process selected was based on the BIOSTYR® bio filter units to satisfy the small footprint requirement.



CONSTRUCTION

United Utilities originally intended to extend the existing aeration streams (ASP1 and ASP2) to achieve the new consents. In order for VWS to secure the project a design for a BIOSTYR® plant was provided, which could be constructed within the existing area excavated for the new ASP1 lane.

THE CONTRACT

VWS were Principal Contractor and were responsible for all aspects of the process and M&E elements of the project.
Value: £42.3m

Programme: 180 weeks

Completion: October 1998



Aerial view of Biostyr Plant located between ASP1 lane and storm drain culvert



Biostyr Plant during construction

DESCRIPTION OF BIOSTYR® PROCESS PLANT

Influent Criteria:

	<u>Ave</u>	<u>Max</u>	<u>95%ile</u>
BOD	18	44	36 mg/l
TSS	24	58	45 mg/l
COD	98		153 mg/l
AmmN	13.6	32	21 mg/l

Treated Effluent Consents: (95%ile spot samples)

BOD	20 mg/l
TSS	30 mg/l
AmmN	5 mg/l

Flow Data:

Minimum flow:	2314 l/sec
Average flow:	4752 l/sec
Maximum flow:	9085 l/sec

