Newham

United Kingdom

Waste Water Treatment

THE CLIENT

South West Water Ltd is 100% owned by the Pennon Group plc, who's other main interest is Viridor Waste Management Ltd. South West Water Ltd are the 9th largest water company in England / Wales and they are responsible for an area in the south west of the UK, which includes the whole of the Cornwall and Devon.

Area served: 10,800km² Population served: 1.5m

THE WORKS

Newham WwTW is located in Truro (Cornwall) on a peninsula of the Truro River into which the treated and storm flows discharge by gravity. The Truro River is a tributary of the Falmouth estuary.

The resident PE is 25000

PROCESS STREAM

Flow and Saline Balancing Storm Tanks (8725m³) Inlet Works (6mm screening) Primary Settlement Secondary treatment Activated Sludge and BAFF streams Nitrification (BAFF stream only) Package Biostyr (Post DN) (BAFF stream only) Blend flow streams UV Disinfection

PROJECT OVERVIEW

The project at Newham comprises the design, procurement, fabrication and construction, completion, commissioning and testing of a denitrification plant as part of the South West Water AMP4 Programme. The process is based on our proprietary Package Biostyr system utilising methanol as the required external carbon source. The design of the methanol system has been carried out in-house with prior group experience being drawn upon due to the hazardous nature of methanol and the necessary adherence to the various governing regulations. Newham is only the second such treatment process of this type installed in South West Water.

THE PACKAGE 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.

Through the introduction of process air or an external carbon source at the base of each unit the media bed sustains the ideal environment for biological activity. The package plant takes the design one step further, in that the pre-fabricated units enable both construction costs and project duration (design and construction) to be reduced significantly for small treatment works, also due to its compact size and reduced footprint the package Biostyr can be integrated into existing process streams with minimal disruption. Through its modular design the package plant also has the ability to be easily extended at future dates if required.





THE CONTRACT

The Client is Edmund Nuttall Ltd acting as AMP4 framework delivery partner for South West Water.

The project partnership team comprises Edmund Nuttall and Hyder Consulting. VWS are the appointed specialist process subcontractor to ENL.

The contract scope included:

- ✓ *Biostyr* feed pumps
- ✓ *Biostyr* package plant
- Methanol reception, storage and dosing plant
- Biostyr and methanol plant PLC and MCC panels
- ✓ Full mechanical and EICA installation
- ✓ Process commissioning.

Award: June 2006 Value: £1.45m Programme: 28 weeks Takeover: Dec 2006

CONSTRUCTION

The package plant was used not only due to available space and to reduce the overall project costs, but also the programme through the process units being prefabricated and tested off-

DESCRIPTION OF BIOSTYR[®] PROCESS

Influent Criteria:

Inlet flows:

Minimum	1728m³/d
Average	6048m³/d
Maximum	10368m ³ /d

<u>Final Effluent Consent</u>: (Annual average) Total Organic Nitrogen to be less than 5mg/l

Process Design:

Number cells	u	3
Size (dia.)	m	3.9
Surface area	m ²	12



Arial view of the Methanol storage and dosing plant



Compact design – Biostyr plant positioned above dirty washwater storage tank

Veolia Water Solutions & Technologies Aqua House, 2620 Kings Court, Birmingham Business Park Birmingham, B37 7YE T 00 44 (0) 1628 896 900 F 00 44 (0) 1628 896 901



www.veoliawaterst.co.uk