

Wilmington Nitrate Removal

Additional Process Plant for Nitrate Reduction

Client: Thames Water

Services Provided

- Early contractor involvement
- Risk management
- Value engineering
- Design management
- Management of construction

Benefits to Client

- Fully integrated team working
- Accelerated construction programme
- Accommodation of significant design changes during construction
- Partnering arrangement / collaborative working



Background

This scheme was for the reduction in nitrates in the water delivered from Wilmington WTW so that the blended output is below the permissible concentration value (PCV) of 11.3mg/l (as N).

To ensure that the Client's alert values for nitrate were met, a nitrate removal plant was provided under this design and build project. A side stream of the plant flow is diverted to the Ion Exchange process where the nitrate concentrations are reduced to less than 2mg/l as N. This 'nitrate free' water is then brought back into the main flow thereby reducing the overall nitrate concentration to below the Client's alert value. This allows Thames Water to run the Wilmington site at the full 22ml/d licence without being reliant on the availability of their Darenth site to provide low nitrate water to blend. In addition to the nitrate removal plant, a complex ICA control system was decommissioned and upgraded without any risk to supply.

The project was undertaken as part of Thames Water's Asset Management Programme 4 (AMP4).

Project Description

The new Ion Exchange Plant comprises:

- A dedicated steel frame plant and MCC room building, with economic heat recovery and ventilation systems and full building services
- Fully bunded salt saturator tanks
- Seven vessel 'Amber pack' ion exchange plant
- 30,000 litre underground effluent storage tank and discharge system
- Major SCADA upgrade to the area ICA control

