

Newmore WTW

Drinking Water | Case Study

The Client

Scottish Water is the sole provider of water and waste water services to around 5 million customers spread over an area of 79,000 square kilometres (over 30,000 square miles), a third of the area of Britain.

The Works

Newmore WTW is located in the Scottish Highlands near the cruise Port of Invergordon and supplies 9 million litres of drinking water per day (Ml/d). The raw water source for Newmore WTW is characterised by high colour particularly from the peaty soil in the catchment area. This can give rise to very rapid increases in raw water colour and natural organic matter, particularly following rainfall after a prolonged dry period.

The Client's Needs

Scottish Water need to increase the treatment capacity of the works while improving the process response to sudden high raw water colour events, often combined with a turbidity increase.



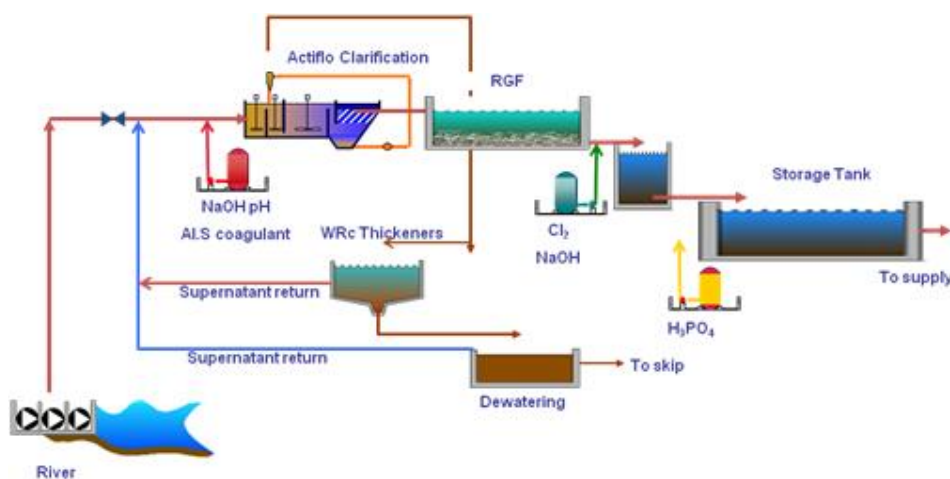
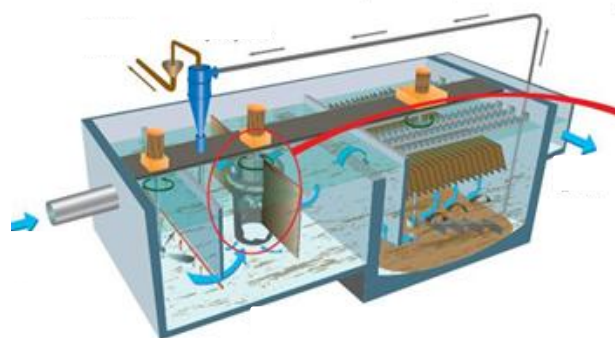
The Solution

Veolia Water Technologies provided the process design, construction, installation, testing and commissioning of 2 package unit Actiflo® High Rate Clarifiers. The project included the sand storage and transfer system, polymer make up and dosing system, coagulation and pH correction system, MCC and software for the process.

Furthermore, due to its ability to start-up and achieve treatment requirements within minutes, Actiflo has proved to be more effective and versatile than the original clarifiers in dealing with the raw water variations.

Project Description

The Actiflo® process is a patented compact clarification system that utilises microsand as a seed for floc formation. The resulting sand ballasted floc displays rapid settling characteristics that permit clarifier designs with high rise rates and short retention times. These designs result in system footprints that are between 5 and 20 times smaller than conventional clarification systems of a similar capacity. Actiflo® is ideally suited for difficult-to-treat waters, such as rapidly fluctuating water sources.



Key Data

Completion: Dec. 2009

FLOW DATA

Minimum flow 3 MI/d
 Average flow: 7 MI/d
 Maximum flow: 9.4 MI/d

ACTIFLO® CLARIFIER CHARACTERISTICS

Number of streams 2
 Lamella surface area
 Per stream 7.1 m²
 Max rise rate 41 m/h

Influent	Min	Ave	Max
Turbidity NTU	0.1	1.7	50
True colour	30	55	233

Effluent 95% spot samples	Min
Turbidity NTU	<2NTU
True Colour	<10 deg Hazen