

## Chlorine Contact Tank Audit for South West Water Sites.

South West Water (SWW) operate a number water treatment works in the regions of Devon and Cornwall, with current combined population in excess of 1.5 million.

An important part of the process is the disinfection of the treated water, typically using a method involving the addition of Chlorine.

Disinfection of water using chlorine requires time, during which the water/chlorine mix passes through the CCT and significant quantities of chlorine and sulphur dioxide are consumed.

BHR Group was contracted to carry out an audit of three Chlorine Contact Tanks (CCTs) with the objective of assessing the efficiency of the disinfection process and providing recommendations for improvement.

Good design of CCT's allows minimisation of Chlorine usage, and also leads to better quality water at the outlet by ensuring that no water is in the tank for too long or short a time.

This has the benefit of reducing chemical costs improving process efficiency resulting in higher potential throughputs and potentially smaller installations.

Another important benefit of reduced Chlorine consumption is saving Carbon footprint implicit in its manufacture.

From tank geometry and previous work, hydraulic efficiencies of each CCT were predicted. A computer-based model was then constructed of one of the similar tanks using the Harwell-Flow3D software.

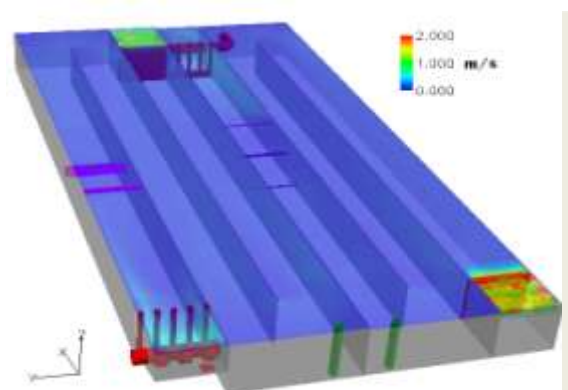
The model was used to analyse the performance of the CCT, and modified to illustrate the potential improvements to system performance.

BHR Group provided several options for the modification of each chlorine contact tank to bring severely under-performance stations up to adequate standards.

In each case BHR Group provided an estimate for the increase in performance of the tank which could be achieved by implementing their recommendations.

In collaboration with SWW a cost / benefit analysis was constructed for each modification, allowing informed decisions for the continued running of each plant.

Following on from this audit, BHR Group undertook to construct a set of design guidelines for SWW, allowing design and construction of future CCTs with increased efficiency and at reduced overall construction and running cost.



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Office contact information:

Telephone: +44 (0) 1234 750 422  
Facsimile: +44 (0) 1234 750 074  
Email: [info@bhrgroup.com](mailto:info@bhrgroup.com)  
Website: [www.bhrgroup.co.uk](http://www.bhrgroup.co.uk)

The Fluid Engineering Centre  
Cranfield, Bedfordshire  
MK43 0AJ  
United Kingdom



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