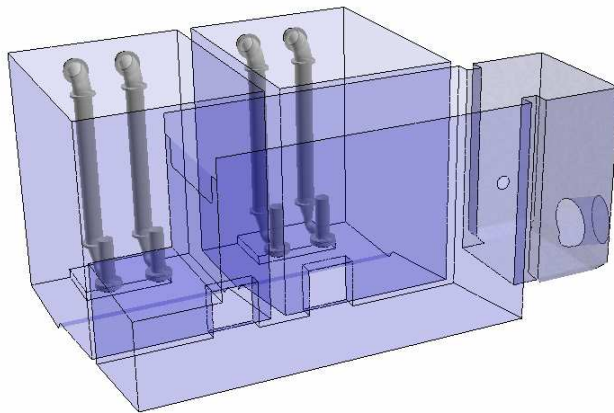


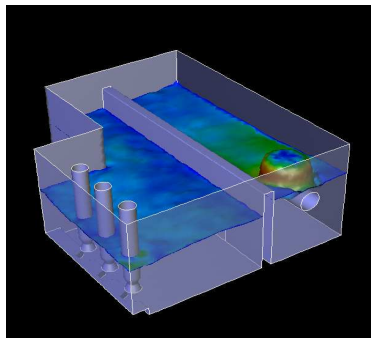
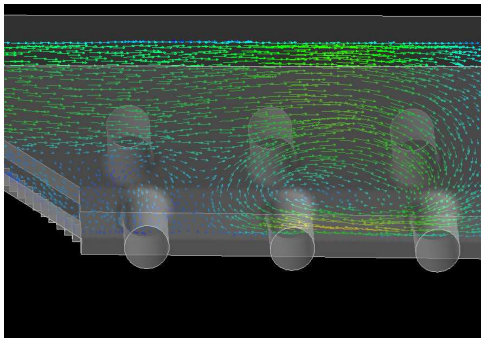
## The design of Pumping Stations

The Fluid Group have worked on a wide variety of pumping stations in recent years from 5,000 m<sup>3</sup> storm capture structures for the £2 billion Thames Tideway project, to wet well design for municipal and industrial wastewater treatment. The requirement to reduce pre-swirl and avoid air entrainment; to minimise solids deposition and ensure continuous operation even on a floating platform (FPSO), is a technique ideally suited for dynamic CFD modelling.

The objectives of all pumping studies are to assess flow mixing, improve benching, reduce pre-swirl, eliminate vortices and improve flow presentation throughout the design, from TWL to lowest water level in the sump.



In the recent scheme shown below, pre-swirl levels were found to exceed design standards and excessive operational pump wear was predicted. By making (relatively minor) changes to the design the lifetime of a £1.2m pumping station was significantly extended.



The Fluid Group provides expertise in a range of simulation techniques including:

- CFD (Fluent)
- Process (GPS-X & BioWin)
- Bespoke design

Recent projects using Fluent CFD include:

- Maundown WTW
- Chlorine Contact tanks and Service Reservoirs
- Thames Tideway PS
- Sligo PS
- Killybegs PS
- Inlet works
- Aeration and mixing tanks
- Filter distribution
- Clarifier optimisation
- Integrated Process/CFD simulation
- Flow split prediction, and
- Digester mixing including non-Newtonian modelling

plus ...

air and liquid flow around a range of structures: from commercially sensitive turbo-machinery, to new designs in the built environment.

Clients include Veolia, CH2M Hill, Siemens, Thames Water, South West Water, Severn Trent Services, Halcrow and Enpure

To discuss potential projects, contact us:

**Tel. +44 (0)1865 596108, or email: [info@thefluidgroup.com](mailto:info@thefluidgroup.com)**

### The Fluid Group are specialists in Computational Fluid Dynamics & Process Modelling for Chemical Engineering, Water and Wastewater Treatment.

#### Dynamic Simulation or Steady State

- Effective selection of the best technique for each job,
- The ability to combine techniques in-house.

#### Multiphase

- Air, water/chemical & solids modelled simultaneously, standard within our models,

#### 3 Dimensional

- Accurate 3D model of existing structures,
- Model wireframes can be imported from existing 2D and 3D CAD designs,

#### Fully Inclusive Quotation

- All known options inclusive at fixed price,
- Fast turnover, one-to-one availability,
- No hidden costs.

#### Animation and still images included

- Images and animation at client's request, all free within the project, for commercial use.

#### Flexibility and Innovation

- All-inclusive combination with Process and 2D Hydraulic/Network modelling if required.