



## Water Industry Services

The Water, Environment and Power (WEP) Division of BHR Group offers independent expert advice to support the water, power and environmental industries

Our consultancy services are based on over 60 years of expertise as a science and engineering company providing consultancy, product development and research services. Services that are tailored to meet the specific needs of our clients.

### Key Capabilities

Working in partnership with our clients is key to ensuring a thorough understanding of their requirements and what is driving change within their industries: its processes and its sustainability in today's environments. BHR Group's WEP division provides core expertise in hydraulics and process technology underpinning asset management, resource planning, cost reduction and compliance with legislation.

### The Benefits

Maximum benefits are achieved by working in partnership to facilitate implementation in which solutions are applied and demonstrated. BHR Group's technology base is continually enhanced through research and development, industrial funded PhD projects and practical site experience.

BHR Group can provide added value consultancy through the tailored application of technology via new projects, repeat contracts, training and customer care to meet our clients specific needs.

### Design Services

Existing designs are evaluated in terms of hydraulic and/or process performance. Improvements or new designs for equipment and systems are proposed.

In addition to technical feasibility studies, capital investment options are identified. Evaluations are made of the potential for process development, equipment improvement and operating cost reduction.



### Physical Modelling

Model studies undertaken early in the product cycle can lead to greater hydraulic efficiency, improved safety and reliability and associated reductions in capital costs. BHR Group offers an up-front design service to eliminate serious hydraulic and process performance problems prior to the model study.

### Computational Fluid Dynamics

We provide CFD analysis to complement testing and experimentation such as on-site tracer tests and physical model studies. The resulting engineering data can be utilised for conceptual studies of new designs, detailed product/process development, troubleshooting and redesign.

CFD is also utilised as a modelling tool when cost-time implications and limitations of physical models are deemed critical.



## Pressure Surge Analysis

Using FLOWMASTER7® and WANDA, BHR Group models transient and steady state conditions in compressible and incompressible flow systems. Transient heat transfer and rotating components can also be modelled. With expertise in pipe network analysis, combined with knowledge of the performance of many fluids, we provide a comprehensive, fluid flow consultancy service.

## Odour Modelling

Using state-of-the-art dispersion models e.g. the UK ODOURsim® and US EPA ISC/AERMOD models, we carry out air dispersion modelling for a range of emission, topographical and meteorological scenarios.

Long and short-term predictions are undertaken of emissions and the results are compared with recommended air quality standards and guidelines and odour detection thresholds. Quantitative risk assessments of the predicted results can also be undertaken.

## Site Audits and Testing

It is important to understand our client's problems and to do that we offer an on site audit and testing service to establish opportunities to maximise process efficiency. Issues such as mixing, dosing and uniform flow distribution to downstream processes are addressed using BHR Group's best practice guidelines and bespoke software.

Tracer testing and sampling on site enables assessment of the hydraulic performance of water and wastewater treatment process units.

**Contact us for more information or visit our website [www.bhrgroup.com](http://www.bhrgroup.com)**

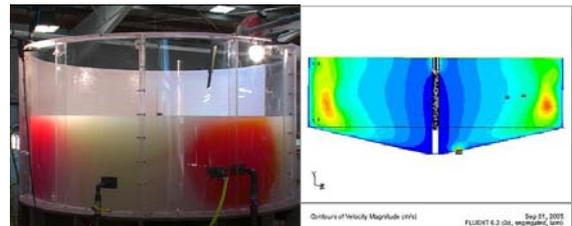
## Rheology Measurement Services

Sludge rheology (flow behaviour) starts with the collection of sludge samples. Rheological measurements are carried out either on site or at our laboratory, at temperatures and shear rates appropriate to client requirements. Dry solids measurements can also be made.

The raw rheology data can be provided, or fitted to appropriate mathematical models (eg. Herschel-Bulkley model for sewage) and estimates made of pumping requirements.

## Sludge Pumping and Processing

The rheology services are underpinned by BHR Group's sludge and slurry pumping, mixing and processing expertise, gained through many years of fluid engineering research and consultancy. We have pioneered research into tank and pipeline sludge mixing in our internationally recognised FMP, WWM and HILINE mixing research consortia.



*Physical and CFD modelling combined*

## Research

BHR Group provides independent, applied, strategic research services tailored to meet specific needs and ranging from single client confidential projects to industrially-funded consortia. Clients are helped to:

- Access government/EC funding
- Participate in co-operative research
- Access specialist knowledge and facilities at minimal investment
- Develop competitive advantage
- Implement developments on site

Office contact information:

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

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



Global Experts in Fluid Engineering