

Registration

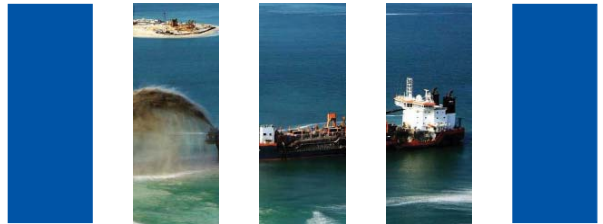
BHR Group

EXPERTS IN FLUID ENGINEERING



18th International Conference on

HYDROTRANSPORT



Rio de Janeiro, Brazil
22–24 September 2010

and

SLURRY PIPELINE DESIGN COURSE

Rio de Janeiro, Brazil: 20–21 September, 2010

Technical Sponsors:



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- Forty years of Innovative Solutions -

Introduction

Forty years ago, in April 1970, JRD Walker, Chief Engineer of Rugby Portland Cement welcomed over 220 delegates from 16 countries to the first Hydrotransport Conference at the University of Warwick, UK. He noted that the Black Mesa pipeline completed its first run just before the Conference began.

While the world has changed significantly over this period, this series of Conferences continues to lead the way in innovative thinking, imaginative solutions and ever-increasing improvements to the skills and development of the technology.

Warnings of global warming threatening the planet, the need for environmentally responsible cost-effective, efficient methods of transporting products is greater than ever. Meeting the challenges of handling solid/liquid mixtures in open channels and in both in-plant and long distance pipelines remains the objective of the delegates to this Conference. Bringing together the world experts from many different industries gives delegates a better understanding of how to design effective systems, troubleshoot and optimise handling techniques.



“Forty Years On”

In recognition of the 40th Anniversary of the Conference, we have invited some long-standing supporters to contribute a page for the proceedings book on the past 40 years of Hydrotransport. You will see their writings in the book and we hope their words will spark memories of major technical developments, incidents, and characters that have made these meetings memorable to delegates across the years.



Who should attend?

Engineers from a wide range of industries, from research establishments, universities and from public authorities whose responsibilities include slurry handling, transportation or who are seeking novel solutions to materials transportation problems.

Venue

The Conference will be held in the Convention Centre of The Intercontinental Hotel in Rio de Janeiro, Brazil. The Hotel is situated in the São Conrado residential area, between the beach and the mountains, and has the biggest hotel convention center in the city. The Conference will commence on the morning of Wednesday 22 September and will close at the end of Friday afternoon.

The choice of Brazil for the 18th International Conference recognises the country's position as one of the world leaders in the design and construction of major slurry pipelines in recent years. With many skilled engineers based in the South American continent, the venue is ideally placed to bring together experts from across the region. Brazil is also one of the fastest-growing economies in the World.

The InterContinental Rio is located in front of São Conrado beach, surrounded by the beauty of the Pedra da Gávea. The hotel has three restaurants and bars to choose from and offers a wide range of amenities and services, including a full health club, beauty salon, hotel shops and an exclusive complimentary shuttle service for guests to Rio Sul shopping area and stops at Leblon, Ipanema and Copacabana beaches. For more information please visit <http://www.intercontinental.com/intercontinental/en/gb/locations/rio>.

Travelling to Rio de Janeiro

There are many airlines serving Rio as befits such a famous international destination and delegates will decide on the most appropriate route for their needs. On arrival at the international airport, transfers directly to the Intercontinental Hotel can be arranged.

Accommodation

Delegates are responsible for booking their own accommodation in Rio de Janeiro. However travel around this city can be difficult and we would strongly advise delegates to make a booking at the Intercontinental Hotel if possible – email reservas@inter-rio.com.br or telephone the Reservations Dept. on 55 21 3323 2200.

Because of the popularity of Rio, an allocation of rooms has been reserved at a special discounted rate. The daily rate, per room, per night is US\$197.00 + US\$5.00 tax and includes breakfast.

Delegates are to make their reservations directly with the hotel before 20 August 2010. Any unconfirmed accommodation in our allocation will be released on that date for general sale – therefore we cannot guarantee availability or the discounted price after this date. All hotel bookings must be guaranteed by credit card. Delegates will need to inform the hotel that they will be participating on the 18TH HYDROTRANSPORT CONFERENCE.

Language

The language of both the Conference and the published Proceedings will be English.

Exhibition

Exhibition cost \$2,200 * and includes:

- 1 delegate registration – full access to technical sessions and social programme
- space with one table (5x2.5ft) and a chair (all additional equipment must be provided by the exhibitor)
- lunch and refreshments daily
- attendance to the registrations and gala dinner
- 5 minute presentation slot from stage during the conference
- contact details of delegates attending the conference (post conference)

*** Book before 20 August and save 10% off this price with the early bird offer!**

Enjoy Meeting Others?

To complement the formal programme we aim to provide a pleasant atmosphere to promote informal technical discussion and personal contact, these aspects are at least as important as the organised sessions. Regular attendees will be familiar with the friendly, well organised arrangements of these Conferences, and will welcome the opportunity to renew old acquaintances and make many new ones.

Social Functions

Admission to the social functions is included in the delegate fee. Additional tickets for the gala dinner are available to purchase from the Conference organisers.

Registration Drinks – Arrive in Rio on Tuesday to register in the evening and meet your fellow delegates and technical committee members over a drink.

Welcome Reception – On the evening of Wednesday 22 September delegates are invited to meet for a drinks reception in the exhibition area. As regulars at the conferences will know, this is an excellent opportunity to relax at the end of a day's technical sessions to renew friendships and meet new contacts.

Gala Dinner – The Gala Dinner will take place at the Intercontinental Hotel in their Esmeralda Room. Before the dinner, delegates are welcomed to a cocktail reception beside the outdoor pool where they will be entertained by a Chorinho band. Ausenco PSI Group are generously sponsoring the Gala Dinner evening.

Would you like your company brochure in the delegate bags?

There is an opportunity for companies to insert promotional literature in the delegate information packs at a cost of \$660.00. Material for insertion must be sent to the conference hotel before 17 September. A sample of literature must be sent to the BHR Group Limited when making your booking for this service.

Want to advertise your company in the proceedings?

A full page of advertising space in the book and CD version of the proceedings. The cost of each page is \$775.50 including VAT. The book is a soft bound volume, produced in Royal Octavo size. As well as being distributed to all attendees of the Conference, the proceedings and CD are sold worldwide after the event. Copy must reach the Conference Organiser by 16 August 2010 to meet the publishing deadline.

Conference Publications

The papers from this Conference and related titles are professionally published and available through BHR Group. For further details, visit our website at www.bhrgroup.com or contact Debbie Carrington at the BHR Group address or by email at books2@bhrgroup.co.uk.

International Technical Advisory Committee

International Committee

Mr Graeme Addie	GIW Industries Inc., USA
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Dr Trevor Jones	TFJ Consulting Ltd, UK
Professor Ken Wilson	Retired – Queen's University, Canada
Professor Thomas Marrero	University of Missouri, USA

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Ms Cecilia Riveros	Arcadis Geotechnics, Chile
Mr Jay Chapman	Ausenco PSI, Brazil
Professor André L A Mesquita	GTDEM – Grupo de Turbomáquinas, Brazil

PROVISIONAL PROGRAMME
For guidance only and may be subject to change

Coarse particle transport

Vertical conveying of coarse particles in pipelines with non-Newtonian carriers

L Graham, J Wu, CSIRO Process Science and Engineering; L Pullum, Private Consultant; Australia

Deposition velocities and concentration distributions of apatite slurry

T Souza, L Leal, University of São Paulo; D Moraes, Santa Cecilia University, Brazil; P Slatter, RMIT University, Australia

New method of coal hydro transportation, process philosophy

C Enkhbold, A Brodt, E-Trans Company, Mongolia

Modelling of settling-slurry flow around deposition-limit velocity

V Matoušek, J Krupička, Academy of Sciences of Czech Republic, Czech Republic

Coarse iron concentrate slurry transport system

A M Vidal, R C Lima, D I R Sá, J P Chapman, Ausenco PSI, Brazil

Flow behaviour of coarse & fine particle mixtures

Flow behaviour of sand-water slurries

P Vlasak, Z Chara, Institute of Hyromechanics ASCR, Czech Republic

Studies on flow characteristics of fly ash-bottom ash mixture slurry at high concentrations

P Senapati, B Mishra, A Parida, Institute of Minerals and Materials Technology, India

The effect of coarse particle addition on the rheology of fine clay slurries

E Paulsen, Cameco Corporation, Canada; R Sumner, BHP Billiton Uranium, Australia; R Sanders, University of Alberta, Canada

Behaviour of intermediate-particle slurries in pipelines

K Wilson, Queens University, Canada; A Sellgren, Lulea University of Technology, Sweden

Determining the maximum coarse particle concentration (C^∞) for slurry pipeline flows

D Gillies, R Sanders, University of Alberta; R Gillies, Pipe Flow Technology Centre, Canada

In situ performance and potential applications of a thermal bed-load measurement method

H Ilgner, CSIR, Centre for Mining Innovations; P Goosen, Paterson & Cooke Consulting Engineers (Pty) Ltd; S Dumbu, Stoner (Pty) Ltd, South Africa

Semi-empirical formulae for upper plane bed friction

J Krupicka, V Matousek, Academy of Sciences of Czech Republic, Czech Republic

Open channel flows

Flow of a high concentrated, extended size distribution slurry in open channels in laminar, transition and turbulent flow

L Fernandez, A González, R Fuentes, JRI Engineering; J Martínez, PSI, Chile

Laminar non-Newtonian open channel flow: investigating velocity, wall shear stress and fluid depth

J Burger, R Haldenwang, Flow Process Research Centre, South Africa; N Alderman, BHR Group Ltd, UK

Limit velocity for coarse solids transport in launders

M Zegpi, R Janssen, Bechtel Chile Limitada, Chile

Long distance pipeline: design, construction and operation

Savage river pipeline – 43 years of operation

F Salt, Savage River Mines, Australia

A practical approach to implement an integrity program based on the Samarco pipeline experience

J Souza, R Nebias, Samarco Mineração SA, Brazil

A technical comparison of coal pipeline options

N Cowper, A Thomas, Slurry Systems Pty Limited, Australia; J Sobota, Wroclaw University of Environmental and Life Sciences, Poland

Application of large slurry and water pipelines for mines in remote, cold, and arid regions – a case study of Bai Yun E Bo West Mine in Inner Mongolia

Y Che, R H Derammelaere, Ausenco PSI, USA, L C Long, Baotou Iron & Steel (Group) Co. Ltd, China

ESSAR'S iron ore slurry pipe line operations in India – a case study

M K Sampath, M V B Murali, Essar Steel Limited, India

Economics of long distance slurry transport

Specific energy consumption and desirable operating conditions for fine-particle slurries

S Abdolreza Hashemi, R S Sanders, University of Alberta; K C Wilson, Canada

Economic impact of slurry pipeline transport on remote mine development

Y Che, R L Gandhi, Ausenco PSI, USA

Paste and high density tailings pumping

GLORES, the gateway to piston diaphragm pumps for high volume applications

R Rijswick, J Kuenen, A Wilmsen, J Sloesen, Weir Minerals Netherlands BV, The Netherlands

Cost-effective pumping of paste and tailings at maximum concentration

H Nägel, FELUWA Pumpen GmbH, Germany

Newmont's Boddington Gold Mine tailings pipelines. Hydraulic design issues and comparisons with operating data

A D Thomas, Slurry Systems Pty Ltd; B Parker, I Edwards, S Hart, Newmont Boddington Gold Mine, Australia

Energy induced rheology reduction of flocculated slurries

J Treinen, R Cooke, Paterson & Cooke, USA; C Salinas, Paterson & Cooke, Chile

Tails pumping – no problem; think again!

R Srivastava, J Wu, Ausenco PSI, USA

Sewage sludge handling

Suspension rheology and its implication on energy efficient pumping

R Holm, Innventia, Sweden; R Haldenwang, V Fester, Cape Peninsula University of Technology, South Africa; R Chhabra, Indian Institute of Technology, India

Flow of Newtonian and non-Newtonian fluids through static screens

S Chandrawanshi, R Chhabra, Indian Institute of Technology, India

Assessment of 387 mm ID Mersey Valley pipeline for transfer of primary digested and thermally-hydrolysed sludge mixtures

N I Heywood, N J Alderman, BHR Group; M Rush, United Utilities, UK

Pipeline integrity assessment

Leak detection and other intelligence software for slurry pipelines

J Martinson, Ausenco PSI, USA

Use of SONAR flow measurement in hydrotransport: First five years of experience and future directions

R J Maron, C V O'Keefe, A M van der Spek, P J Rothman, CiDRA Minerals Processing, USA

Oversized HDPE liners to combat internal corrosion and erosion in mining industry pipelines

J Thorne, Venturelab Inc., USA

Wear in a HDPE subsea tailings pipeline

R Srivastava, J Wu, Ausenco PSI, USA

Development of a pilot-scale facility for evaluating wear in slurry pipeline systems

B Fotty, J Been, J Wolodko, Alberta Innovates – Technology Futures (AITF), Canada

Slurry rheological assessment

Method of determining the inherent viscosity of a slurry and other rheological trends as illustrated by a data bank of over 200 different slurries

A Thomas, Slurry Systems Pty Limited, Australia

Comparison between different methods to determinate the true rheological diagrams for slurries

A González, JRI Engineering; C Conca, M Larenas, Universidad de Chile; R Fuentes, JRI Engineering, Chile

Viscous scaling and flow behaviour of a phosphate clay slurry

G Addie, GIW Industries, USA; L Pullum, Private Consultant, Australia; A Sellgren, Lulea University of Technology, Sweden

The sheet flow viscometer

P Slatter, RMPC, RMIT, Australia; R Haldenwang, IMST, CPUT, South Africa; R Chhabra, IIT Kanpur, India

Start-up, shutdown and commissioning

Design, construction, commissioning and testing of a portable tube viscometer and pump test rig

R Haldenwang, V Fester, A Sutherland, R Toit, Cape Peninsula University of Technology, South Africa; R Holm, Innventia, Sweden

Start-up of the second SAMARCO iron concentrate slurry pipeline

R C Lima, A M Vidal, J P Chapman, Ausenco PSI; T A Silva, SAMARCO, Brazil

Design, construction, commissioning, and operation of the Da Hong Shan iron concentrate slurry pipeline

Y Che, R H Derammelaere, Ausenco PSI, USA; C Y Wang, Kunming Iron and Steel Group Co. Ltd., China

Pipes, valves and pump maintenance

Optimisation and monitoring of valves for GEHO piston diaphragm pumps

V Quites, Samarco Mineracao; J Kuenen, J Sloesen, J Abreu, Weir Minerals Netherlands bv, The Netherlands

Non-Newtonian, non-settling slurries (fine particles)

Pressure loss and discharge coefficients for non-Newtonian fluids in long orifices

V Fester, M Chowdhury, Cape Peninsula University of Technology, South Africa; F Ludicello, HIS-ESDU, UK

Solids sedimentation

Bed establishment lengths under laminar flow

L Pullum, Private Consultant, L Graham, J Wu, CPSE, CSIRO, Australia

Sedimentation velocity of grinded particles: a new, explicit semi-empirical formula for its determination

R Fuentes, F Calle, A González, P Koch, JRI Engineering, Chile

A comprehensive methodology to predict particle sedimentation and solids concentration along the time in gelled drilling fluids

R Gandelman, G Vieira, A Leibsohn, Petrobras, Brazil

Settling lengths for coarse particles in solid-liquid pipe flow

T Jones, TFJ Consulting Ltd; C Ariyaratne, Thermo-Fluid Mechanics Research Centre, UK

Sedimentation and erosion of sediment at high solids concentration

C van Rhee, A Talmon, Delft University of Technology, The Netherlands

Solids settling in sheared non-Newtonian fluids

M Rudman, CSIRO Mathematics, Informatics and Statistics; L Pullum, Private Consultant; R Roy, N M F M Yasin, P J Scales, PFPC, University of Melbourne, Australia

Conference Proceedings

All delegates receive a book plus CD of the conference proceedings within the fee. To obtain further copies, please email Debbie Carrington: confx3@bhrgroup.co.uk.

BHR Group Company Profile

BHR Group Limited is an independent contract Research and Technology Organisation (RTO) and SME. We specialise in the fluid dynamics and mechanics, and fluid physical and chemical behaviour of industrial processes from the nano to macro scales. We provide our expertise through consultancy; research and testing services; physical and computational modelling; technology translation; specialist training, Conferences and seminars; and product development and exploitation. These services are applied to solve problems for a wide range of industrial processes and sectors including chemicals, pharmaceutical, renewable and conventional energy sources, water and wastewater, and aerospace. Consultancy and training courses are available for all aspects of slurry transportation and handling including sand, hydrates, cuttings & drilling fluids and GTL catalysts.

Our aim is to provide new innovative or optimised designs, analytical models and operating methodologies from which cost-effective and sustainable industrial processes can be developed. To do this we work closely with our customers to understand their business needs, and develop and implement practical technical and business solutions.

Consultancy and training courses are available for all aspects of slurry transportation and handling including sand, hydrates, nuclear sludge clean-up, mineral slurries, cuttings & drilling fluids and GTL catalysts.

For more information please visit www.bhrgroup.com

2-Day Course on

SLURRY PIPELINE DESIGN

20–21 September, 2010

On the two days prior to the start of the Conference, a training course will be run by the conference Chairman, Dr Nigel Heywood and colleagues from BHR Group and Ausenco PSI. The Course will be aimed at both engineers new to the technology and others seeking to refresh their knowledge and hear of the latest technologies available. This is an excellent opportunity for attendees to gain a basic or renewed understanding of the techniques and challenges faced in hydrotransport.



The course will cover many aspects of the transport of both settling and “non-settling” slurries through pipelines. Pipeline design is normally based on laboratory or pilot-scale testwork from which important physical properties of the slurry are obtained, such as rheological properties for “non-settling” slurries and deposit velocities for settling slurries. In addition, other measurements such as particle size distribution, slurry density and slurry settling rates are frequently measured. The course will cover methods available for the estimation of frictional pressure loss, and total pressure changes, for both slurry types, and will also include design aspects for long distance slurry pipelines. The main types of slurry pumps will be described and approaches to centrifugal slurry pump deration will be provided. Mechanisms responsible for wear in slurry handling equipment will be described, together with approaches to minimise wear. The use of intelligence software and pipeline simulation software for design and training will also be included. There will be time for discussion with lecturers and other participants.

Course Registration

The registration fee for the Slurry Pipeline Design Course includes attendance from 20–21 September 2010, course material, lunch and refreshments daily.

Early bird rate – applicable to all bookings received with payment on or before 20 August 2010.

Conference delegates – delegates registering to attend both the Conference and the Course will be entitled to 25% off the course fee.

Have you registered for the conference? – you can receive 25% off of the course fee!

Enquiries

Enquiries should be addressed to:

Ally Davies, Conference Organiser
BHR Group Limited
The Fluid Engineering Centre
Cranfield
Bedfordshire MK43 0AJ, UK

Tel: +44 (0)1234 756522
Fax: +44 (0)1234 750074
E-mail: confx2@bhrgroup.co.uk
Web: www.bhrconferences.com

REGISTRATION

Conference Registration

The registration fee for the Hydrotransport Conference includes entrance to all technical sessions from 22–24 September 2010, a bound book and CD of the Conference proceedings, lunch and refreshments daily, and entrance to both the welcome reception and gala dinner.

Early bird rate – applicable to all bookings received with payment on or before 20 August 2010.

Presenting authors – each presenting author (maximum of 2) is entitled to a 25% discount off the Conference fee.

Members of ABM / CTDUT are entitled to a 10% discount.

Students and Graduates accompanied by a full paying delegate are entitled to 50% discount of the full Conference fee. Please contact the Conference Organiser directly to register.

One day attendance – there are a limited number of one day places available – please contact the Organisers to register for one day.

Sending 3 or more delegates? Contact the Organisers for group discounts.

How do I register?

- ◆ **BOOK ON-LINE** at www.bhrconferences.com
- ◆ **Email** the registration form to Debbie Carrington at confx3@bhrgroup.co.uk
- ◆ **Telephone** Debbie Carrington on +44 (0) 1234 756561

How do I pay?

- ◆ **Invoice** – 30 day terms
- ◆ **Credit card** – payment details should be entered on the registration form by completing the appropriate boxes and sending to Debbie Carrington at confx3@bhrgroup.co.uk
- ◆ **Bank Transfers** – payable to: National Westminster Bank Plc,
Cranfield University Branch,
Wharley End, Cranfield,
Bedford MK43 0SR, UK

US Dollar payments

Account No: 140/00/39509273 IBAN: GB43 NWBK 6073 0139 5092 73
Sort Code: 60-06-56 BIC: NWBK GB 2L

Cancellations

A full refund will be made for cancellations received before 1 August 2010. Cancellations between 2–19 August 2010 will incur a US\$75 administration charge. No refunds will be made for cancellations on or after 20 August 2010. Substitutions can be made at anytime.

INVOICE AND REGISTRATION FORM

18th International Conference on

HYDROTRANSPORT

Rio de Janeiro, Brazil: 22–24 September 2010

Your details

Please complete in block letters ticking appropriate boxes

Prof Dr Mr Mrs Miss Ms

Last name

First name

Position

Company

Company VAT Number

Address

Post/Zip Code

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Email

Dietary requirements or special requests

Signature

Date



