

REGISTRATION FORM

GENERAL INFORMATION

TUNRA BULK SOLIDS HANDLING RESEARCH ASSOCIATES (TBS)

TUNRA Bulk Solids Handling Research Associates (TBS) is built upon the strong foundations of education, research and consultancy in Bulk Solids Technology, which have been in place at Newcastle for over 35 years.

TBS provides contract research and professional consultancy to the resource and process industries. In the 35 years of its existence, this group has completed over 2000 projects for approximately 1000 companies in Australia and 40 other countries.

The group is averaging some 160 industrial projects per year.

COURSE VENUE

Wests Mayfield
Industrial Dr
Mayfield NSW 2304
Phone: (02) 4903 6100
Fax: (02) 4903 6160
www.westsnewcastle.com.au

FEES

All fees must be paid prior to the event
Delegate Registration \$2750 Inc GST
5 or more Delegates receive a 10% discount.
Fees include program notes, laboratory sessions, lunches, refreshments & course dinner

ACCOMMODATION

Delegates should arrange their own accommodation. Accommodation is available at The Gateway Inn, Newcastle (Wests Mayfield)
26 William St, Corner Industrial Dr
Mayfield NSW 2304
Ph: 02 4903 6300
Email: stay@gatewayinn.net.au

CANCELLATIONS

If you are unable to attend the event a substitute delegate is welcomed at no extra charge. If notification of withdrawal is received no less than 14 days prior to the event, 80% of the fee will be refunded. No refunds will be made if notification of cancellation is received less than 13 days prior to the date of the event. The organisers reserve the right to alter or cancel the program due to unforeseen circumstances. In the event of cancellation, a full refund of fees will be made

This registration form should be forwarded together with payment, to:

TUNRA Bulk Solids
The University of Newcastle, University Drive,
Callaghan NSW 2308, Australia
Tel: +61 2 4921 6067, Fax: +61 2 4921 6021
Email: Danielle.Harris@newcastle.edu.au
www.bulksolids.com.au

Mr/Ms/Dr:

First Name:

Surname:

Position:

Organisation:

Address:

Postcode:

Telephone:

Facsimile:

Email:

Fee Payment:

Payment Method: EFTPOS Cheque CreditCard

This Registration Form should be forwarded, together with payment, to:
TUNRA Bulk Solids,
The University of Newcastle, University Drive,
Callaghan NSW 2308.
Tel: +61 2 49216067, Fax: +61 249216021
Email: danielle.harris@newcastle.edu.au



Bulk Solids Handling

Storage, Feeding, Transfer, Belt Conveying

3 Day Course
5-7 October 2010
NEWCASTLE



Presented in
NEWCASTLE
Wests Mayfield

COURSE PRESENTERS

EMERITUS PROFESSOR ALAN ROBERTS AM

Emeritus Professor Alan Roberts AM is the Foundation Director of TUNRA Bulk Solids. He is an Honorary Fellow of Engineers Australia, Member of the I Mech. E. (U.K.) and Fellow of the Australian Academy of Technological Sciences and Engineering. He has received several awards including: Institution, Sir George Julius and A.G.M. Michell Medals from Engineers Australia, Solids Handling Award, Institution of Mechanical Engineers U.K.; Lifetime Achievement Award of British Materials Handling Board, Member of the Order of Australia and Centenary Medal. His research and consulting in the field of bulk solids handling spans a period of 50 years. He has published 5 design manuals and over 350 research papers.

DR STEPHEN WICHE

Dr Stephen Wiche is the General Manager of TUNRA Bulk Solids and has been working in research and industrial consultancy for over 30 years. In addition to his experience in Bulk Solids more generally, he is a specialist in instrumentation, bin weighing systems and abrasive wear in bulk solids containers, chutes and transportation systems.

DR CRAIG WHEELER

Dr Craig Wheeler is Associate Director of TUNRA Bulk Solids and Senior Lecturer in Mechanical Engineering at the University of Newcastle, Australia. He worked for 10 years with BHP Billiton in Australia in a variety of engineering positions, including maintenance, production and design. Since joining the University he has worked as a consultant for TUNRA Bulk Solids for over 10 years. His particular interests include belt conveying, transfer chute design and mechanical conveying.

DR TOBIAS KRULL

Dr Tobias Krull is the Operations Manager of TUNRA Bulk Solids. He graduated with a BE (Dipl-Ing) from the Technical University of Braunschweig, Germany in 2000 and completed a Doctorate in 2005. He has been involved in a large number of consulting and research projects in solids handling and pneumatic conveying and has published a number of conference and journal papers in these subject areas.

3 DAY COURSE OUTLINE

Introduction – Overview of Bulk Solids Handling

- Brief historical review
- Gravity discharge – Modes of flow
- Mass-flow, Funnel-flow, Expanded-flow, Intermediate-flow
- Typical storage bin shapes – Industrial case studies
- Influence of bin discharge flow patterns on wall loads and structural integrity

Bulk Solids Flow Properties and Application to Design

- Gravity reclaim stockpiles
- Description of test equipment and procedures
- Influence of storage time and environmental factors such as temperature and moisture
- Evaluation of hopper and chute lining materials for friction and wear

Review of Mass-flow and Funnel-Flow Design

- Mass-flow and funnel-flow limits
- Basic bin shapes
- Interpretation of flow property reports in relation to bin and stockpile design
- Case study examples to illustrate operational problems and how they were overcome
- Dynamic modelling of bulk solids systems

Gravity Reclaim Stockpile Design

- Influence of consolidation stresses on rathole geometry, draw-down and live capacity
- Selection and positioning of reclaim hoppers and feeders for optimising gravity reclaim
- Stockpile base pressures and loads on reclaim tunnels, hoppers and feeders

Loads on Bin Walls

- Symmetric, Eccentric Discharge
- Silo Quaking and Shock Loads
- Loads on Buried Structural Elements

Feeder Selection and Design

- Importance of hopper and feeder interfacing
- Review of basic feeder types – belt, apron, vibratory, screw, plough, tube
- Determination of optimum hopper and feeder interfacing for uniform draw-down
- Determination of feeder loads, torque and power initial and running conditions
- Controlling feeder loads and start-up torque
- Modelling of large ROM feeders

Transfer Chute Design and Performance

- Basic principles of chute design
- Application of flow properties in the design process
- Chute flow problems due to adhesion and wear
- Dynamic modelling of hood and spoon for optimum accelerated flow
- Optimising chute profile for feeding and transfer
- Optimising chute geometry for controlled wear in the flow zone and at belt feed point
- Dust control in transfer chutes
- Application of DEM and CFD in chute design and performance evaluation

Belt Conveying of Bulk Solids

- Overview of open and closed systems. Special belt conveyors and conveyor selection recommendations
- Review of basic design procedures
- Economic and technical considerations in optimising conveyor design
- Analysis of main resistances – idler indentation, idler spacing, bearings and seals, stress states in bulk solids and contribution to drag.

COURSE OUTLINE

KEY LEARNING OUTCOMES

- Basic principles of handling plant design
- Bulk solid flow properties and application to design
- Loads on bin walls – symmetric, eccentric discharge – shock loads and silo quaking
- Stockpile design incorporating draw-down, live capacity, base loads and locations of reclaim hoppers, feeders and tunnels
- Loads on buried structures in bins and stockpiles
- Chute design for feeding and transfer
- Belt conveying – overview of various types of conveyors – bulk solids and conveyor belt interactions – review of basic design procedures and future developments

FURTHER INFORMATION

Further detailed information regarding the course can be found at www.bulksolids.com.au or by contacting Danielle.Harris@newcastle.edu.au

