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4th Annual



Bulk Materials HANDLING

FEATURING CASE STUDIES ON:

6th – 8th June, 2006, Brisbane Marriott Hotel, Queensland

BABCOCK & BROWN
INFRASTRUCTURE (DBCT)



Ports
Corporation
of Queensland



ROLLESTON
COAL

Australia's only dedicated materials handling event for the mining industry.



TOPICS COVERED INCLUDE:

- Overseas demand
- Mine developments
- Port expansions
- Skill shortage
- Maintenance
- Practical safety
- Environmental safety
- Stockpiling and blending

SEPARATELY BOOKABLE WORKSHOPS - Thursday, 8 June, 2006:

WORKSHOP A:

Why materials handling structures fall down - Learning from past structural failures?

Dr Frank Gatto, *Director* & Richard Morgan, *Director*, Aspec Engineering Pty Ltd

WORKSHOP B:

Forgotten something? - Risks in bulk materials handling installations

David Skegg, *Corporate Services General Manager*, Scientists, Engineers, Managers & Facilitators (SEMF)

AS WELL AS:

Rio Tinto Iron Ore

QR

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BULK
HANDLING
REVIEW

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BULK MATERIALS HANDLING

6th – 8th June, 2006, Brisbane Marriott Hotel, Queensland

Dear Executive,

As the demand for mineral commodities continues to increase, port owners and operators are also looking at ways to support the export of bulk materials from Australia. Working towards minimising bottlenecks - infrastructure developments and expansions are taking place across the country, with multi million dollar contracts being awarded to some of the biggest engineering firms in the world.

This **Bulk Materials Handling** event is designed to ensure mining and port operators learn from some of the most interesting and insightful case studies from across the bulk materials industry.

As part of the Operational Excellence Series, this event will showcase some of the major mine and port expansions currently being undertaken, with case study sessions also on maintenance, dust and noise reduction, safety, stockpiling and blending, and separation and classification.

Bulk Materials Handling 2006 will allow you to meet and greet some of the most experienced mining engineers, operations and maintenance personnel, and project managers through the various networking channels available, including the official conference dinner.

Together with other bulk materials handling experts, I look forward to welcoming you to Australia's only dedicated materials handling event for the mining industry.

Regards,



Sherene Asnasyous
Program Manager
Bulk Materials Handling



Comments made by people who attended our 2005 bulk materials event included,

"This event allowed me to network with old friends in the industry, meet new ones and get a cross pollination of ideas relevant to this industry," C.W., Rio Tinto

"All the speakers were relevant at this conference to bulk materials handling, and there was a good chance for connecting with other delegates at the various networking opportunities made available,"
C.G., DeVere Mining Technologies Ltd.

"I liked this event because it was a very interesting well rounded conference, with a good variety of relevant content,"
J.A., Alden Associates Consulting Engineers Pty Ltd.

"An event that challenged me to think differently about my work and the industry - excellent," S.D., CQPA

"This event offered a broad variety of topics, not only focused on one area, which meant there was something for everyone. Exhibitors at this event also added an extra dimension to the conference, it was really good,"
D.B., DuPont Australia Ltd.

P.S. If you register by 14th April 2006, you can make significant savings on team registrations!

BULK MATERIALS HANDLING

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CONFERENCE DAY ONE:

Tuesday, 6th June, 2006

8.30 Coffee, tea and registration

9.00 Opening address from Chair

THE OVERSEAS DEMAND

9.20 Exploring Australia's current mining boom and why it's impacting bulk materials handling

- Providing a broad overview of Australia's current commodities market
- Listing the main countries that are currently importing Australia's commodities and what they're importing
- Providing a future outlook for Australia's commodity exports
- Will the boom last forever?

Gavin Wednt, *Senior Resource Analyst*, Fat Prophets

MINE EXPANSIONS: DESIGN AND IMPROVEMENTS

10.00 CASE STUDY: Xstrata Coal's Rolleston handling facility

- The Rolleston Coal Project is a recent addition to Xstrata Coal's mining portfolio in Central Queensland, yielding up to 10Mtpa of low volatility thermal coal from an open cut mining operation. The construction contractor, Monadelphous Engineering, commissioned Connell Hatch to design the coal handling facility complete from the ROM hopper to rail outloading system. The facility includes ROM dump hopper, primary, secondary and tertiary sizers, 1700tph inloading conveyors to a custom designed rail mounted stacker with a 40m long boom, reclaim tunnel incorporating stockpile dischargers and 4000tph outloading conveyor to a 400tonne train loadout bin over a new rail loop. This paper describes features of the facility which was completed on schedule in late 2005.

Jim Durack, *Senior Consultant*, Connell Hatch

10.40 Morning tea

LACK OF INFRASTRUCTURE: EXPANDING OUR PORTS

11.00 CASE STUDY: Demonstrating highlights of the Abbot Point coal terminal expansion

- Ports Corporation of Queensland has planned a staged expansion of the Abbot Point Coal Terminal in North Queensland. The original terminal was completed in 1984, and throughput has progressively increased to the current level of 15Mtpa. A two stage expansion has been planned. Stage 2 involves an additional two stockpile rows, a 6,000tph Stacker/Reclaimer and associated conveyor systems. Construction of Stage 2 commences shortly and together with the speeding up of existing conveyors and modifications to the dump station, will increase terminal throughput to 25Mtpa. Stage 3 involves duplication of inloading and outloading systems, and a further expansion of the stockyard, which will give the terminal an overall capacity of approximately 50Mtpa. The Stage 3 expansion requires a commitment to the construction of the missing link in the Newlands rail system in order to proceed.

Hugh McKay, *Principal*, Connell Hatch

11.40 CASE STUDY: Boosting Dalrymple Bay Coal Terminal's port capacity by 8Mtpa to 68Mtpa by the end of 2007 and up to 80Mtpa by the end of 2008

- Providing an overview of the DBCT
- Discussing issues of port capacity, and how this is presently managed
- Outlining the DBCT expansion program
- Recognising the future benefits the expansion will have for the Bowen Basin supply chain and its major customers

Eric Kolatchew, *Group Projects Director*, & Greg Smith, *Operations General Manager*, Babcock & Brown Infrastructure

12.20 Lunch

1.20 CASE STUDY: Port of Gladstone - Meeting the needs for coal export capacity

- Detailing the overall expansion project of the **RG Tanna Coal Terminal**, including discussions on each stage of its works description:
 - Shiploading stream upgrades
 - Stockpile progressions
 - Completion of its second rail loop
 - Construction of its third rail unloading station
 - Construction of its third shiploader
 - Completion of its fourth berth
 - Upgrade of the port's power supply
- Benefits of the expansion project
- Detailing the expansion of **Wiggins Island Coal Terminal**:
 - Demand for capacity
 - Overview of development
 - Program for delivery

Gary Carter, *Port Infrastructure Planning Manager*, Central Queensland Port Authority

2.00 CASE STUDY: Increasing the port capacity at Rio Tinto Iron Ore's Dampier Port Facilities

- Overview of the expansion phases undertaken at Parker Point which have more than doubled the capacity of this facility
- The benefits of the staged approach
- The design and construction of the new bulk handling and blending facilities, including the:
 - New car dumper facilities
 - Extension of the existing stockyard
 - New conveyor systems
 - New berths and ship loading

Angus Pidgeon, *Superintendent Engineering*, Rio Tinto Iron Ore

2.40 Afternoon tea

MAINTENANCE

3.00 Prolonging the life of bulk materials handling systems and machinery

- Reviewing the Australian standards on mobile machinery for bulk materials handling
- Calculating the limitations of your machine's expected life
- Understanding the structural components of your machine to reduce the risk of structural collapse
- Implementing machinery risk assessments as a tool for prioritising re-engineering work and prolonging its life

Dr Frank Gatto, *Director*, Aspec Engineering Pty Ltd

NOT ENOUGH ENGINEERS

3.40 The big issue: Attracting students to engineering degrees, and attracting engineers to the mining industry

- Discussing the huge industry skill shortages issue
- How is the lack of industry engineers impacting bulk materials handling processes?
- Can we attract younger people to engineering degrees?
- Exploring the different bulk materials handling engineer degrees available at universities – what choices are available?
- Aiming to turn qualified engineers into qualified mining engineers – can we save a dying breed?

4.20 End of day one

6.30 Pre-dinner drinks and dinner - register now!



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CONFERENCE DAY TWO:

Wednesday, 7th June, 2006

8.45 Coffee, tea and day two registrations

9.00 Opening address from Chair

MEETING ENVIRONMENTAL, SAFETY AND COMMUNITY RESPONSIBILITIES

9.20 **CASE STUDY: Highlighting QR's strategies to minimise coal dust emissions from coal trains**

- Outlining the research and development undertaken of dust suppression trials at various coal mine sites
- Identifying the need for such research, and the community consultation involved for such projects
- Illustrating the results found thus far

QR representative tbc

10.00 **Meeting community environmental responsibilities within bulk materials handling**

- Environmental knowledge and awareness:
 - Exploring the main environmental issues within bulk materials handling for the mining industry
 - Outlining ways to obtain approval for new mine or ship loading operations
 - Encouraging community consultation – what was done in this situation?
 - Meeting current and future environmental responsibilities at both the mine and port

John McCambridge, *Manager Environmental and Infrastructure Solutions, Scientists, Engineers, Managers & Facilitators (SEMF)*

10.40 Morning tea



11.00 **Implementing conveyor safety in materials handling**

- Understanding the structural components of conveyors
- Encouraging conveyor safety amongst miners and conveyor technicians
- Case study examples of correct and incorrect conveyor installation and application
- Implementing correct conveyor procedures to ensure safety comes first
- Practical and technical aspects of conveyor safety

11.40 **Forgotten something? - Risks in materials bulk handling**

- What to look out for: what's dangerous in the world of materials handling?
- Discussing the relationship between attitudes and risk perception
- Investing in ways to develop safety attitudes and culture: how can this be achieved?
- What statutory requirements are relevant to the area of bulk materials handling, and how to comply with them?

David Skegg, *Corporate Services General Manager, Scientists, Engineers, Managers & Facilitators (SEMF)*

12.20 Lunch

STOCKPILING AND BLENDING

1.20 **WORST PRACTICE CASE STUDY: The other side of Operational Excellence: Learning from the mistakes made at Fly by Night NL's operations at Mount Optimism**

- Ensuring that stockpiles are adequate for buffering, homogenizing and grade targeting purposes
- Making long-term predictions about the amount of grade variation that customers will see
- Making short-term decisions that consider uncertainty and grade variability

Geoff Robinson, *Industrial Statistician, CSIRO Mathematical and Information Sciences*

2.00 **Using 3D stockpile modeling to improve stockpile management and blending accuracy**

- Improving grade prediction through the use of 3D stockpile models
- An overview of the key components of real time 3D stockpile models
- Advancing stockpile reconciliation through accurate tracking
- The role of 3D stockpile models in stockyard design

Trent Bagnall, *Managing Director, Qmaster Limited*

2.40 Afternoon tea

3.00 **Minimising coal and iron ore dust emission from mine to ship**

- Exploring mine to ship strategies that reduce the loss of airborne dust and minimise community effects
- The potential of veneer treatment to minimise dust emission and reduce water consumption at port terminals
- Examining the outcomes of laboratory tests and field trials
- Evaluation of dust mitigation action and forecasting future dust emission levels

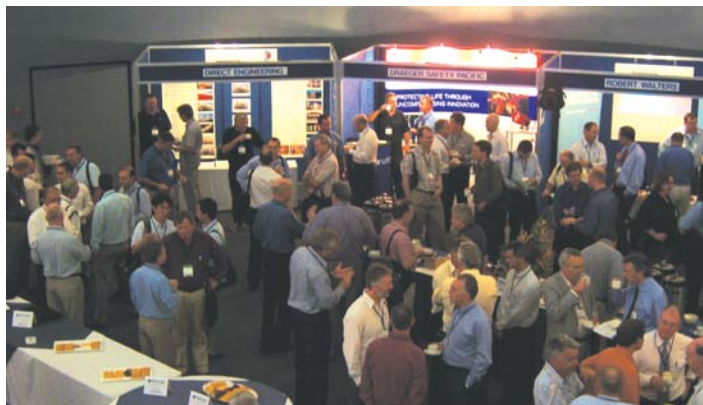
John Planner, *Director, Introspec Consulting*

3.40 **Technological advancements in bulk materials' flowability**

- An overview of the flowability tester developed at the Centre for Bulk Solids and Particulate Technologies
- Understanding how the tester provides consistent and reliable test results for characterising bulk solids in coal, nickel ore and bauxite
- Future benefits of this tester once applied to the handling of bulk materials

Dr Bill McBride, *Lecturer, University of Newcastle & Consulting Engineer, TUNRA Bulk Solids*

4.20 Close of conference



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DAY THREE: POST-CONFERENCE WORKSHOPS - Thursday, 8th June, 2006

WORKSHOP A: 9am - 12pm

Why materials handling structures fall down - Learning from past structural failures?

Although modern technologies and new materials have greatly increased our confidence in the prediction of structural behaviour, materials handling structures still fall down – and whenever a bin, stacker-reclaimer or conveyor collapses, it is a major event and often the beginning of a hunt for clues and culprits.

This workshop looks at past structural failures examining the events leading to the failure, the background causes and finally looking at lessons learnt.

The workshop is presented in three sections:

- Review of a database of about 60 past failures. We will discuss at least 10 of these failures. This will be an interactive discussion where participants can share their experiences on similar case studies.
- Detailed review of a major failure. This failure occurred overseas and was the subject of a royal commission – much of the data is available in the public domain.
- Develop a “scorecard” for best practice based on lessons learnt from the past failures.

Dr Frank Gatto, *Director* & Richard Morgan, *Director*, Aspec Engineering Pty Ltd

About your workshop facilitators:



Richard Morgan has held senior positions with a number of engineering companies including over 10 years as the Principal Structural Consultant for BHP Engineering. He is President of the Queensland Division of Engineers Australia and Past Chairman of the Structural College of Engineers Australia. He previously sat on Australian Standards Committee ME43 for Materials Handling Machines. He has authored and co-authored 18 technical papers.



Frank Gatto has over 25 years experience in engineering having worked for a number of engineering companies and universities. He is currently an editor for the Journal of Structural Engineering and a past chairman of the Queensland Structural Panel of Engineers Australia. He has authored and co-authored over 20 technical papers.

WORKSHOP B: 1pm - 4pm

Forgotten something? - Risks in bulk materials handling installations

Bulk materials handling installations are generally perceived by workers and visitors alike to be rather benign installations, but there is good evidence to show just how dangerous things like conveyors and large slow-moving machines can be.

This workshop is designed to give engineers and managers in bulk materials handling facilities an understanding of how to recognise the discrete nature of risks arising from typical layouts. It examines the damaging mechanisms, and applies probabilistic examination of possible outcomes. It looks at the various components of the damage evolution systems, and suggests ways of overcoming simple and multiple failure modes, using basic techniques. Drawing on the work of Gibson, Haddon, Viner, Eckenfelder, and Rasmussen, the workshop takes the participants through a series of steps.

It consists of:

- Concepts in understanding the damage sequence
- Separating possible outcomes from the most probable outcomes
- Establishing event distribution curves from iterative analysis
- Determining failure causation and mitigation

Participants are encouraged to use real-life examples, and place them in the models provided to see what preventative effects might be derived from the analysis.

David Skegg, *Corporate Services General Manager*, Scientists, Engineers, Managers & Facilitators (SEMF)

About your workshop facilitator:



David Skegg has spent 30 years in the risk management field, is well known in the world of safety, and regarded as an expert in his field. He is widely published in a number of countries. David is known for his strong and sometimes unpopular opinions on how to make things safe. His professional interests are the investigation of events, and understanding risk and the perceptions of risk.

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