Narrow Vein Mining Conference 2008

Australasian Institute of Mining and Metallurgy
Publication Series Number 9/2008

Ballarat, Australia
14 – 15 October 2008

ISBN: 978-1-5108-4053-9

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571

Some format issues inherent in the e-media version may also appear in this print version.

Printed by Curran Associates, Inc. (2017)

Australasian Institute of Mining & Metallurgy (AusIMM)
P.O. Box 660
Carlton South Victoria 3053
Australia

Phone: 61 3 9658 6100
Fax: 61 3 9662 3662

publications@ausimm.com.au

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Contents

Keynote Address

Beyond Airleg Mining – Narrow Vein Mining in the 21st Century	*P L McCarthy*	**3**

Case Studies

Narrow Vein Mining at Charters Towers, Queensland, by Longhole Open Stoping	*C A J Towsey*	**9**
Return to Hillgrove	*P Ganza and C Dell*	**13**
The Challenger Gold Mine	*P Androvic, P Bamford and M Sandy*	**19**

Exploration and Resource Geology

Continuity Risk in Narrow Reef Gold Deposits – Implications for Evaluation and Exploitation	*S C Dominy and I M Platten*	**31**
Resource Estimation and Grade Assignment – A Comparison Between Historical Production and Current Maxwell Mining Validation Case Study at Morning Star Gold Mine, Woods Point	*M D Goodz, J Rea and P Jackson*	**51**
The Ballarat East Goldfield – New Insights on an Old Model	*D J Osborne*	**59**
Significance of Geological Control on Assay Data in the Narrow, High-Grade Gold Quartz Veins at the Sand Queen Mine, Comet Vale, Western Australia	*D Potter, C Sheriff and P Collins*	**71**
Resource Modelling and Mine Design at Obuasi Mine, Ghana	*H Eybers, J Visser and C K Boafo*	**79**

Metallurgy

Gold Particle Characteristics in Narrow Vein Deposits – Implications for Evaluation and Metallurgy	*S C Dominy, Y Xie and I M Platten*	**91**
The Python – An Underground Processing Plant for Narrow Vein Mining	*T R Hughes and N J Grigg*	**105**

New Applications/Research and Development

Mechanised Ore Removal from the Floor of Narrow, Flat Stopes	*S L Tombs, A Buckingham and R M Hancock*	**111**
Recovery of Broken Ore Stocks Left on the Mine Floor and Other Applications of the Underground Mobile Supersucker	*K Biegaj*	**115**
Thermal Fragmentation – An Innovative Process for Mining Narrow High-Grade Precious Metal Veins	*D Brisebois*	**123**
Monorail Technology – A Rapid and Cost-Effective Method of Decline Development	*E Chanda and B Besa*	**129**

Rock Mechanics/Mining Geotechnics

Augusta Gold-Antimony Mine	*M McCarthy, A Fowler and S Marshall*	**145**
Strategies for Minimising and Predicting Dilution in Narrow Vein Mines – The Narrow Vein Dilution Method	*P C Stewart and R Trueman*	**153**
The Use of Geotechnical Instrumentation to Optimise an Engineered Mine Design at Beaconsfield Gold Mine, Tasmania	*A R Penney, P B Hills and R J Walton*	**165**
Competing Factors in Support Selection for the West Zone of the Beaconsfield Gold Mine, Tasmania	*C Scott, A R Penney and P Fuller*	**173**

Stope Design and Mining Methods

Design Factors Leading to Prevention of Bridged Stopes at Jundee Operations	*C Miles and G Lind*	**181**
Drift and Fill – The High Value, High Recovery Mining System	*L Dawson, M Yumlu and M English*	**187**
Resue Firing and Dilution Control in Narrow Vein Mining	*M Tuck*	**195**
The Development and Implementation of a Fully Remote Stoping Method at Beaconsfield Gold Mine, Tasmania	*P B Hills, J Mills, A R Penney and S Arthur*	**199**

Wallaby – The Horizontally Challenged Opportunity *N S Rauert* **207**

Victorian Gold Case Studies

Recent Experiences at the Kangaroo Flat Mine, Bendigo *R McLean and M Hernan* **217**

Historical Challenges, Modern Solutions at Ballarat East *K Williams and M Sykes* **229**

Tarnagulla Gold Mine *P L McCarthy and L Faulkner* **237**

Reviving the Inglewood Goldfield in Central Victoria – Exploration and Operations *J Cahill* **249**