



Keith D. Whitchurch,

BE(Hons), MEngSc, MAusIMM, CP(Min), RPEQ, PERHAPI, CPI, IPU.

P R E S I D E N T D I R E C T O R

- BE (Mining - Hons), University of Queensland - 1984
- MEngSc (Research), University of Queensland
"A Geostatistical Approach to Coal Resource Classification" - 1987

CAREER OVERVIEW

Keith has more than 36 years of experience in open cut and underground mining. It is 39 years since he first set foot on a mine and sat down to schedule it. He is still planning and scheduling mines today. He holds a Master degree in Geostatistics and Resource classification that predates the JORC code. His first peer reviewed papers on the matter date from 1986. He has had a continuous involvement in Resource and Reserve estimation across numerous commodities globally since 1985. His first peer reviewed paper on the application of artificial intelligence in mining was presented at APCOM 1996. He has had a continuous and deep involvement in innovation in mining and the application of mathematical techniques to modelling and optimisation for almost 4 decades.

He is a member of the AusIMM, a Chartered Professional, a Registered Professional Engineer (Queensland), a member of Perhimpunan Ahli Pertambangan Indonesia (PERHAPI), a Competent Person Indonesia (CPI). The first foreigner in Indonesia who is registered as a Professional Engineer Indonesia (PII) and the first foreigner to achieve an Executive Professional Engineer (Insinyur Profesional Utama - IPU) Certificate.

Keith specialises in mine transformation and his expertise includes geological modelling, reserves evaluation, pit optimisation, mine design, equipment selection, mine scheduling, backfill design and planning, project costing and economics. Keith has worked on projects in many countries including Australia, India, Japan, Jordan, Indonesia, China as well as across the continents of Africa and North and South America. He has authored reports that underpin over USD 15 Billion in transactions, stood as expert witness on 3 continents and realised order of magnitude transformations in mining projects over 3 decades. For the last 3 years Keith has served as the mining representative on the Chartered Professional Program Committee

PROJECT EXPERTISE

- Numerous due diligence projects on behalf of a range of clients including many international banks.
- Competent persons for a long list of technical reports for a range of transactions including IPO, RTO, M&A, Sales and Purchase and Debt Funding
- Complete responsibility for design and execution of grassroots skarn exploration in North Sumatera, Indonesia
- Complete management of multiple exploration programs in Kalimantan, Indonesia
- Design of the Commodore coal mine for successful tender bid by detailed design of the first dozer push based mine in Australia for Roche Mining
- Block Ranking and economic Evaluation for German Creek Mine
- Examination of options for application of large draglines at the Kayuga project
- 5 year mine plans for the cascade mine, New Zealand

- Pre-development level mine planning for Socuy mine, Venezuela
- Mine planning for Goro, Koniambo and Le SLN nickel operations in New Caledonia
- Due Diligence of Martabe Project, Indonesia
- Review IPCC options for Mt Thorley/Warkworth
- Design options for the transit of the trap gully monocline at Callide mine
- Life of mine planning for the Acland project
- Mine planning for Glen Wilga Feasibility study
- Detailed 2 year plans for PAMA at Kideco mine
- Operational review for Kalimantan Energi Lestari
- Due Diligence of Weda Bay Nickel Project
- Complete audit of Resources and Reserves for all Shell Coal projects prior to divestment
- Complete review of Saraji mine as part of mine turn around project
- Review of Oakleigh project
- Mine planning for seams 6 7 and 8 areas at Indominco including Dozer Push assessment
- Assist in implementation of best practice in mine planning a for Pamapersada Nusantara
- Life of mine planning for Kaltim prima Coal
- Due diligence for Indonesian coal offtake for major Japanese trading house
- Definitive Feasibility study of the Tuhup Project in Central Kalimantan
- Scoping study of Asam-Asam/Mulia project
- Lender Technical Advisor for BCT phase 3b Expansion
- Detailed 2 year plans for PAMA at Kideco mine.
- Operational review for Kalimantan Energi Lestari
- Due Diligence of Weda Bay Nickel Project
- Review of central Kalimantan Lateritic Iron Projects
- Established consulting division for merged Surpac Minex Group
- Responsible for consulting activities of the group world wide
- Direct responsibility for 12 engineers and geologists in 3 offices in Australia
- Coordinate developing market opportunities for consulting worldwide
- Personally undertaking Market development and consulting in Indonesia through turbulent political and security times
- Definitive Feasibility study for Theodore Mine
- Mine planning for Kaltim Prima Coal compulsory divestment.
- Pit Designs and Dump Layouts for Bengalla Mine
- Review of Prefeasibility study for Mt Pleasant/Bengalla mines
- Complete life of mine plan review for Kaltim Prima Coal
- Life of mine plan for Arouma Bauxite mine, British Guyana
- Evaluation of application of Draglines in Indonesia for major mining contractor
- Conceptual dragline study for Theodore mine
- Conceptual mine planning for Xiwan Coal , China
- Batu Hijau mine 5 year plan review, Indonesia

CAREER SUMMARY

- 2006 - Present President Director - PT SMG Consultants Indonesia, Jakarta - Indonesia
Director - SMG Consultants Pte. Ltd., Singapore
- 2009 - Present Director - ARC Resource Consultants Pte. Ltd., Singapore
- 2007 - Present Director - ARM Resource Management Limited, Hong Kong
- 2004 - 2009 Chief Operating Officer - SMG Consultants Pty. Ltd., Brisbane, QLD - Australia
- 2002 - 2003 Manager Consulting - Surpac Minex Group Pty. Ltd., Brisbane, QLD - Australia
- 1997 - 2002 Manager Brisbane - ECS International Pty. Ltd., Brisbane, QLD - Australia
- 1990 - 1997 Mining Engineer - Engineering Computer Services Pty. Ltd., Bowral, NSW-
Australia
- 1989 - 1990 Mining Engineer - BHP - Utah Coal Ltd., Goonyella / Riverside Mine
- 1987 - 1989 Mining Engineer - TDM/BHP - Utah Coal Ltd., Goonyella / Riverside Mine
- 1987 Gemco, Groote Eylandt, NT
- 1985 - 1987 Tutorial Fellow, University of Queensland - Australia
- 1983 - 1984 Technical Assistant, CSR, QLD, Callide/ Boundary Hill Mines
- 1982 - 1983 Technical Assistant, TDM, QLD, Moura Mine
- 1981 - 1982 Technical Assistant, BHP, QLD, Gregory Mine

AFFILIATIONS

- Member of the Australian Institute of Mining and Metallurgy (AusIMM)
- Competent Person for Coal Resource and Reserve Estimation under JORC Code
- Competent Person Indonesia (CPI) under KCMCI Code
- Registered Professional Engineer of Queensland (RPEQ)
- Member of Perhimpunan Ahli Pertambangan Indonesia (PERHAPI)
- Member of Persatuan Insinyur Indonesia (PII) as the Executive Professional Engineer (IPU)
- AusIMM Central Queensland Branch Treasurer and acting Secretary 1988

SEMINARS/ PRESENTATIONS

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| • "Coaltrans School of Coal Digital Training Course 2021 - Fundamental of Coal Mining" | Mar 2021 |
| • "Virtual Coaltrans Asia 2020" | Nov 2020 |
| • "Indonesia: Steady Supply of Affordable Coal for Blending" at Coaltrans Japan 2019, along with Mr. F Hary Kristiono, COO of PT Medco Energi Mining Internasional and Mr. Hendra Sinadia, Executive Director of APBI-ICMA. | Sep 2019 |
| • "Value-added technology to drive efficiency" at Coaltrans Bali 2019 | Jun 2019 |
| • "Valuation of Mineral Assets" at Sumatra Miner Palembang 2019 | Mar 2019 |
| • Coaltrans Asia 2018, held at BICC Westin Hotel Bali | May 2018 |
| • "Focus on Indonesia as Preferred Mining Investment Destination in South East Asia" at Mining Investment Asia Singapore 2018 | Mar 2018 |
| • Keynote opening session at OZMine Jakarta 2017 | Sep 2017 |
| • "Time for a New Strategy for Private Equity Investments – How Investors Plan to Deploy the Capital in Innovative Deal Structures?" at Mining Investment Asia 2017 | Mar 2017 |

PEER REVIEWED PUBLICATIONS

- *Geostatistics for Prediction of Coal Washability Characteristics*, by A.D.S. Gillies, D.C. Cawte, K.D. Whitchurch and G.D. Just, AusIMM.
- *A Simulation Model for Selecting a Suitable Digging Method for a Dragline Operation*. E.Y. Baafi, H. Mirabediny and K. Whitchurch, Proceedings APCOM XXV, July 1995.
- *A dragline simulation model for complex multi-seam operations*. E.Y. Baafi, H. Mirabediny, K. Whitchurch. 1996.
- *Integrating Coal Quality and Blending into the Project Evaluation Process*. H. Watanabe, K.D. Whitchurch, G.P.J. Turczynski, T. Sugita, N. Ozawa. Presented at NEDO/DME Conference, Brisbane, March 1997.
- *New Technology in Seismic, Geophysical and Geological Data Interpretation*. P.J. Hanna, A.A. Cram, K.D. Whitchurch, T. Sugita, N. Ozawa, H. Watanabe. Presented at NEDO/DME Conference, Brisbane, March 1997.
- *Computer simulation of complex dragline operations*. E.Y. Baafi, H. Mirabediny, K. Whitchurch. International Journal of Surface Mining, Reclamation and Environment 11 (1997): pp7-13.

AWARDS

Indonesian Improvement Award 2014 " **The Best Consultant Mining Company of the Year** "

CONTACT KEITH

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