



# Keith D. Whitchurch,

BE(Hons), MEngSc, FAusMM, CP(Min), RPEQ, PERHAPI, CPI, IPU, ASEAN Eng, APEC Eng

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 holds a comprehensive set of qualifications, including a BE (Hons), MEngSci, affirming his excellence in the field. As a Competent Person (Mining) and RPEQ, Keith's credentials extend to Registered Professional Engineer in Queensland, underlining his commitment to professional standards. He is a distinguished FAusIMM, reflecting his active involvement in the industry's professional community. Internationally, Keith's affiliations include PERHAPI (Perhimpunan Ahli Pertambangan Indonesia) and CPI (Competent Person Indonesia), illustrating his standing as a recognized professional in Indonesia. His groundbreaking achievements are further highlighted by his status as the first foreigner registered as a Professional Engineer Indonesia (PII) and the attainment of the Executive Professional Engineer (IPU) Certificate. On a broader scale, Keith's recognition extends to the ASEAN Engineering Register (AER) and APEC Engineers Registered (ER), showcasing his standing as a qualified and reputable professional within the ASEAN and APEC regions.

Keith boasts an illustrious career in open-cut and underground mining, spanning almost four (4) decades, marked by a continuous and profound engagement in mining innovation and mathematical techniques for modelling and optimization. Specializing in mine transformation, he excels in geological modelling, reserves evaluation, pit optimization, mine design, equipment selection, scheduling, backfill design, and project costing. Keith holds a pre-JORC code Master's degree in Geostatistics and Resource Classification, showcasing his early dedication to academic excellence. As an avid early adopter of cutting-edge technology, his groundbreaking contributions include the presentation of the first peer-reviewed paper on artificial intelligence in mining at APCOM in 1996.

Since 1985, Keith has played a pivotal role in global Resource and Reserve estimation across diverse commodities. Over the past 30 years, he authored reports underpinning transactions exceeding USD 15 billion, demonstrating his significant impact. Serving as an expert witness on three continents underscores his credibility.

## 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

- Enterprise Optimisation for PT Kalimantan Surya Kencana, Indonesia
- Awak Mas - Whittle Strategic Assessment, Indonesia
- Enterprise Optimisation Exxaro Resources Data, South Africa
- Orabanda - Geological Model Review, Western Australia
- Strategic Assessment, Groote Island
- Aquila - Strategic Assessment, Michigan – USA
- Strategic Assessment and Enterprise Optimisation - Los Azules, Argentina
- Galliano Gold - Strategic Assessment and Enterprise Optimisation, Ghana
- Josemaria Copper Project- Strategic Assessment, San Juan – Argentina
- Mubambe Strategic Assessment, Zambia
- Torex Gold - Strategic Assessment, Mexico
- Mayoko Iron Ore - Assist to move to Production, Republic of Congo
- Pronto Autonomous Truck, Australia
- Iron Cap - Technical Assistance, Zambia
- Project Charged - Strategic Assessment, Canada
- Bathurst Resources - Strategic Assessment. New Zealand
- Koniambo - Enterprise Optimisation, New Caledonia
- Candente Copper - Enterprise Optimisation, Peru
- Spanish Mountain - Enterprise Optimisation, British Colombia, Canada
- 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

## CAREER SUMMARY

- 2021 - Present Partner - Whittle Consulting Pty. Ltd. - Australia
- 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

- Fellow Member of Australian Institute of Mining and Metallurgy (FAusIMM)
- Competent Person for Coal Resource and Reserve Estimation under JORC Code
- Competent Person Indonesia (CPI) Kode KCM I
- 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

Coal Mining Transport, Logistics & Supply Chain Forum 2023, How digitalization is changing the face of coal mining, held at Le Meridien Hotel, Jakarta	5 – 6 Dec 2023
LIAMforum 2023, Chair for Session: Mentors, Champions & Mentees: Growth, Shared Wisdom & Much Fun	3 – 6 Oct 2023
28th Coaltrans Asia 2023, Chair for Session: STREAM B: Technology and Innovation	24 – 26 Sep 2023
Asian Coal Summit 2023, Moderator for Session: Coal Trader's Panel: Trading Challenges, Opportunities and Risk	24 – 25 Aug 2023
Coaltrans Asia 2022, Panels for Session: ESG and the outlook for long-term coal finance	18 – 20 Sep 2022
Nickel Summit 2022, Speaker for Session: Implications of ESG on Mine Planning and Equipment Selection	24 – 25 Aug 2022
"Reviving Indonesia's Exploration & Mining Spirit: Embracing Commodities Supercycle" at IEDC 2021	Jul 2021
"Coaltrans School of Coal Digital Training Course 2021 - Fundamental of Coal Mining"	Mar 2021
"Virtual Coaltrans Asia 2020"	Nov 2020
11th MGEI Annual Convention 2019, Presenter at Exploration-Mining Project Holistic Assessment and Valuation	24 – 26 Sep 2019
"Value-added technology to drive efficiency" pada Coaltrans Bali 2019	Jun 2019
"Valuation of Mineral Assets" pada Sumatra Miner Palembang 2019	Mar 2019
Coaltrans Asia 2018, di BICC Westin Hotel Bali	Mei 2018
"Focus on Indonesia as Preferred Mining Investment Destination in South East Asia" pada Mining Investment Asia Singapore 2018	Mar 2018
Mining Investment Asia, Session: Time for a New Strategy for Private Equity Investment – How Investors Plan to Deploy the Capital in Innovative Deal Structures?	Mar 2017
4th Floating Terminal Agendas at Intercontinental Hotel Jakarta	19-20 Nov 2014
IHS Asia Pacific Coal Outlook Conference 2014, held at the Grand Hyatt Bali	Nov 2014
Bangladesh coal supply options, K.D. Whitchurch, Presented at HSBC Coal Power Workshop in Bangladesh	April 2014
Indonesian Coal Exploration and Mining, K.D. Whitchurch, Presented at SGX public education seminar, Singapore	July 2013

Indonesian Coal Exploration and Mining, K.D. Whitchurch, Presented at SGX public education seminar, Singapore	July 2013
An Introduction to coal mining engineering, K.D. Whitchurch, Presented at Geo Energy internal executive training seminar, Singapore	June 2013
Potential of Indonesian Metallurgical Coals, K.D. Whitchurch, Presented at Petromindo – Indonesian Coking Coal Conference Shangri-La Hotel Jakarta	2013
Indonesia's Coal, K.D. Whitchurch, Presented at Anglo American Indonesian Coal Workshop Jakarta, Indonesia	2012
Indonesia's Coking Coal, K.D. Whitchurch, Presented at McCloskey Asia Pacific Coal Outlook Conference	2011
A summary of Indonesia's coking coal potential, K.D. Whitchurch, Presented at 17th Coaltrans Asia, Bali, Indonesia	29 May – 1 Jun 2011
Indonesia – Exploring its potential, K.D. Whitchurch, Presented at Coking Coal and Met Coke Forum, Singapore	10-11 May 2011
Examination of alternative mining methodologies that have the potential to increase productivity at the mine site, K.D. Whitchurch, Presented at 4th Coal trans Coal Mining Operations & Economics, Jakarta	2010
Deposit Evaluation Techniques, K.D. Whitchurch, presented at 3rd Coal Mining Operation and Economic, Deposit Evaluation Techniques, Grand Hyatt Jakarta	12 – 13 Oct 2009
The Principals of the JORC Code, K.D. Whitchurch Presented at 15th Coaltrans Asia, Bali International Convention Center	31 May–3 Jun 2009
Coal Geology of Indonesia: Identifying the Options, K.D. Whitchurch, Presented at 8th Coaltrans India, New Delhi	3 – 4 Mar 2009
3 Steps to Operational Improvement, K.D. Whitchurch, Presented at Gemcom Users Group, Jakarta April 2007 Reduction of Mine Costs by correct mine planning and equipment Selection, K.D. Whitchurch, Presented at 13th Coaltrans Asia, Bali	2006
Anatomy of a Feasibility Study, K.D. Whitchurch, A. Keith, Rajawali Internal Education Seminar, Jakarta 2005 Mine Planning Fundamentals, K.D. Whitchurch, Presented at 12th Coaltrans Asia, Bali	2005
Mine Planning Fundamentals, K.D. Whitchurch, Presented at Coaltrans Mining for non-miners residential workshop Balikpapan	2004
Berau Coal – Lati Deposit Dragline Opportunities, K.D. Whitchurch, Presented at Berau Coal management education seminar, Tanjung Redeb	Dec 2003
Mine Planning Fundamentals, K.D. Whitchurch, Presented at Coaltrans Mining for non-miners residential workshop Balikpapan	2003
Draglines For Indonesia, K.D. Whitchurch, Presented at PT Pamapersada Nusantara internal management education seminar, Jakarta	2003
Cost Benefits of using alternative surface mining methods, K.D. Whitchurch, Presented at 11th Coaltrans Asia, Bali	2003

Deposit Evaluation Techniques, K.D. Whitchurch Presented at Anglo Internal Deposit Evaluation Workshop, Middlemount	1997
An Overview of the Integrated Coal Evaluation System. T. Sugita, K.D. Whitchurch, A.A. Cram, H. Watanabe, N. Ozawa. Presented at NEDO/DME Conference, Brisbane	Mar 1997
Artificial Intelligence Systems for Optimum Mine Planning, K.D. Whitchurch, A.A. Cram, T. Sugita, N. Ozawa, H. Watanabe. Presented at NEDO/DME Conference, Brisbane,	Mar 1997
Underground and Open-Cut coal Scheduling using Expert Systems. K. Whitchurch, A.A. Cram, N. Ozawa, K. Koizumi. Presented at APCOM XXVI, Pennsylvania,	1996
A Geostatistical Approach to Coal Reserve Classification by K.D. Whitchurch, A.D.S. Gillies, D.C. Cawte and G.D Just, Presented at Pacific Rim Conference,	Aug 1987
Classification of Coal Resources Using Geostatistics by K. Whitchurch, in Proc. Coal Mining Geostatistics Seminar, University of Queensland	Nov 1986