

Curriculum Vitae

Patrick Willis – Managing Director (UK) & Corporate Consultant



- Profession:** Mining Engineer
- Education:**
- BScMinEng(Hons) (University of Newcastle-upon-Tyne).
 - Metalliferous Mine Manager Certificate of Competency (Mines and Works)
- Registrations / Affiliations**
- Registered Professional & Chartered Engineer.
 - Southern African Institute of Mining and Metallurgy Fellow and past President.
 - Associate Member of Association of Mine Managers.

Specialisation:

- Mine planning and design
- Integrated mining engineering
- Mine mechanization
- Economic assessment of mines and mining methods
- Research marketing and management
- Technology transfer
- Forming & developing high performance winning teams
- Project leadership

Expertise:

Patrick has worked in the mining industry since graduating in 1976. His experience includes mine line management and operational experience on various mines in the UK, Zambia and South Africa, the long term planning of gold, platinum, base metal and coal mines and various and varied feasibility studies while working for a major mining group (Gold Fields). Since 1989 his experience included applied research and development for mining. This included mine mechanization, geophysics, hydraulic transport, ventilation and refrigeration as well as research into innovative mine design and barriers to successful technology transfer. He was instrumental in forming a number of collaborative technical mining programmes including



Deepmine, Future mine, Platmine and the Global Mining Research Alliance (GMRA). Since mid-2003 he has consulted to a wide range of mining industry clients. Patrick has travelled extensively in order to keep abreast with latest technology, and has direct experience of mining industry clients in Canada, the United States, Australia and South Africa. He is an active member of the Southern African based mining institute (SAIMM) and has chaired a number of conferences including the 6th International Symposium on Mine Mechanisation and Automation. He is a past President of the Institute.

Patrick advises mining industry clients on a diverse range of technical and management issues. He is currently active in the following specific areas:

- Cost benefit analysis and productivity improvement strategies.
- Technology advisor to the mine equipment industry.
- Strategic management of mine research and development programmes and advises on technology transfer issues.
- Mine logistical optimisation.
- Develop multi-criteria decision-making processes.
- Management of multi-disciplinary feasibility studies for new mining ventures.
- Undertakes independent peer reviews of life of mine plans and strategy.
- Undertakes Technical Due Diligence studies and competent person's reports.
- Managers and markets the company in the UK.

Employment History:

Present	Managing Director (UK)	Bara Consulting (UK)
2012 – 2013	General Manager – Mining Consulting & Engineering (UK)	Royal HaskoningDHV
2008 – 2012	Managing Director	Turgis Consulting Ltd (UK office)
2003 - 2012	Corporate Consultant	Turgis Consulting (Pty) Ltd
2003	Acting Director & Programme Manager	Miningtek
2002 - 2003	Programme Manager Directorate	Miningtek - Strategic Management
1995 - 2000	Programme Manager	Miningtek - Research Leadership, Mining Systems
1995		Advanced Leadership Programme (ALP) - Leadership Development
1992 - 1995	Marketing Manager	Miningtek - Research Marketing & Technology Management
1989 - 1992	Planning Manager	COMRO - Research Planning
1986 - 1989	Group Mining Engineer	GfSA - Mechanisation

1981 - 1986	Senior Mine Planner	GfSA - Strategic Mine Planning
1976 - 1981	Shift Boss, Overseer, U/G Manager	Gold Fields of South Africa (GfSA) - Production
1975	Learner Miner	Luansha Copper Mine
1974	Learner Miner	British Gypsum

Key Experience:

- Mining R&D Strategy - Beyond 3000 m.
- Projections of likely changes in mining circumstances, conditions and technologies that may affect safety and health risks – Simrac.
- International Scan for the Mining & Metallurgical Sector - An investigation undertaken as input to the DACST Science and Technology Foresight Project.
- An initial investigation into the problems associated with technology transfer and recommendations for the establishment of sustainable health and safety technology transfer – Simrac project.
- Rapid access development & support – Deepmine project.
- Deepmine guidelines and summary documentation.
- Knowledge and Technology transfer recommendations for Futuremine.
- Developed Course content for in house technology transfer training.
- Led a number of integrated mining engineering design projects.
- Peer reviews of various mine design projects.
- RSA Market Analysis for the UK mining supply industry (funded by British Government).
- Investigation into hard rock cutting technologies.
- Handbook on mine safety – Simrac.
- Led a logistical simulation to optimise mine design for a mine in Madagascar.
- Life of mine planning, feasibility studies and design of gold, coal, base metal and platinum mines.
- Independent Engineers Reports (IER), technical due diligence & competent persons reports. Clients include JPMorgan, Standard Bank, Unicredit, Endeavour Finance, ABSA and most of the majors.
- Recommendations and guidelines for mechanization.
- Overall mine extraction strategies.
- Managing Director of a leading mining consultancy.
- Chief Operating Officer of a leading mining consultancy.
- Marketing Manager and Programme Manager of a leading mining research group.
- Shift Boss, Mine Overseer, u/g manager.

Publications:

- 1988 An economic evaluation of integrated stoping systems. S.A.I.M.M. colloquium - Equipment alternatives in underground mining.
- 1989 Safe ultra-deep mining - The role of new technology. National safety and occupational hygiene. Official journal of the Institute of Safety Management.
- 1989 Trackless mining in the context of an integrated mining system. South African mining, coal, gold & base minerals.
- 1989 An economic evaluation of integrated stoping systems. S.A.I.M.M. journal.
- 1990 A survival strategy: Integration of new technology in South African gold mines. 14th CMMI Congress. I.M.M., Edinburgh.
- 1997 Towards an Integrated Mining System for Deep Level Mining using New Technology. 4th International Symposium on Mine Mechanization & Automation, Brisbane.
- 1998 Technologies Required for Safe and Profitable Deep Level Gold Mining, South Africa. 16th CMMI Congress. I.M.M., Montreal.
- 1998 New Novel Non-explosive Rock Breaking Research in South Africa, 1998 Australian Mining Technology Conference, Fremantle, Western Australia.
- 1999 Technology Transfer - From Researcher to Mine Operations - The South African Experience. 5th International Symposium on Mine Mechanization and Automation, Sudbury, Canada.
- 2001 A practical approach to hard rock selective mining. 6th International Symposium on Mine Mechanisation and Automation, Johannesburg, South Africa.
- 2001 Non-explosive Continuous Mining Methods being developed by CSIR: Miningtek. Mining Techniques of Narrow-Vein Deposits. Val D'Or, Canada.
- 2002 Technology and Knowledge Transfer - good practice guidelines, SAIMM Colloquium, Johannesburg.
- 2002 The Challenge of Rapid Access Development in South African deep Level Mines. NARMS-TAC 2002, Toronto, Canada.
- 2004 Trends in Mine Hydropower Systems, SAIMM Deep and High Stress Mining Colloquium, Johannesburg.
- 2004 A framework for the Introduction of Mechanized Mining. International Platinum Conference, Rustenburg, South Africa.
- 2006 The Uranium story - an update, SAIMM Presidential address, August 2006, Johannesburg