



**Strategic Mines** is a niche mining team offering the expertise of highly experienced mining professionals who have decades of operational, managerial, engineering and integration experience.

We collaborate with study managers and mine managers to develop efficient, sustainable mining operations. We have a solid track record with many resource companies. Our clients value collaborative relationships that solve the right problems and maximise the value of their resources.

We effectively communicate across management lines from senior management and the various technical, planning and operating teams so that we not only solve problems but also pass on our knowledge to assist in building the internal capability of your company.



#### **We deliver integrated solutions to address:**

- Mining studies
- Project Development
- Operational Strategy
- Operational Readiness
- Production Efficiency
- Mine Site Design and Scheduling
- Operational Mentoring



#### **We work with study managers and mine managers to:**

- Develop greenfield resources
- Expand current operations
- Prolong and optimise the operating life of existing ore bodies

## **Maximising the value of ore bodies**

All of our people have over 20 years' hands-on industry experience and our collective knowledge spans the full breadth of mining operations.

**We know that mining companies need to maximise the value of their ore bodies.**

We also know that can be easier said than done, because we've been there and we've seen it.

We use industry standard planning software, like *MineSight 3D* and *Vulcan*, but designs and interpretation are always developed from experience and ore body knowledge.

When the right decisions are made about developing the mine, the benefits are seen throughout the mining value chain, with the proof evidenced in the 'bottom line'.

The people at Strategic Mines have a great deal of experience in getting the most out of ore bodies, efficiently moving product through the supply chain and onto market: we have been doing it in production and project environments for decades. To achieve such results we know and understand the management, technical and people aspects required for your operation.

Our overarching aim at Strategic Mines is to help companies maximise the value from their ore body. We deliver **results** through **insights** gained from many years of **experience**.

#### **CONTACT INFORMATION**

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## Our skills and abilities

### Experience

Our mining specialists have extensive, relevant expertise in studying, developing, managing and operating mines. All of our people have over 20 years 'on the ground' experience and its these team members who will work directly on your project.

Collectively the range of commodities we have worked on include precious metals, base metals and bulk commodities, incorporating the full range of open pit mining methods. Our team members have worked across the world including Australia, SE Asia, Central Asia, Africa, Europe and South America.

We have a holistic understanding of the mining value chain and know that a symptomatic problem in one area may be caused by an issue in another. We know from experience what these impacts could entail and have tried and proven methodologies that generate solutions.

### Insight

Demonstrated industry experience is what leads to being able to quickly ascertain where your issues are and what to do about them. Strategic Mines has helped many clients identify the true nature of a problem through the intuitive insight one gains from many years of experience and a fundamental understanding of how to improve the bottom line.

**We like to think this ability to offer deep insights across the breadth of the mining operation makes us a little different and sets us apart.**

### Results

We aim for results that are enduring, sustainable and not dependent upon a particular person. Solutions are embedded in plans, processes and systems.

Our focus is to always maximise value and improve the bottom line.

The repeat work we receive from our clients is the clearest example that they see value in the insights, results and value that we provide to their businesses.

## Some of our clients



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## Collaboration across the mining value chain

### Mining value chain

Clients have studies and operational challenges that can be very specific in nature, or span across the mining value chain. The mining value chain extends from exploration to product delivery, incorporating;

- geological target generation and exploration,
- resource development and interpretation,
- geo-metallurgy and process flowsheet design,
- water management,
- SMU optimisation, mining strategy and method,
- pit design, fleet selection and mine scheduling,
- NPI and facility requirements,
- contracting, construction and commissioning,
- operational readiness and procedures,
- short term planning and grade control,
- approvals and operational management,
- marketing and product logistics.

Multiple skill sets are often required to co-ordinate and work together to overcome challenges that span the mining value chain. Working with a multidisciplinary team is our 'normal'.

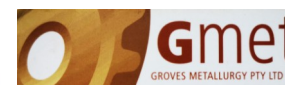
### Alliances are key

We have found that the optimum outcome always requires a deep understanding of the orebody, which is where Strategic Mines always starts.

But we are also quick to point out when other specialists are needed to deliver a client's full requirements. In those occasions we have often collaborated with, participated in, and co-ordinated multi-disciplinary teams to meet our client's full requirements, on projects and studies of varying size, cost and complexity.

Some client's have a preferred set of SMEs for us to work with. But if required, we can introduce clients to a proven group of 'like minded' specialist consultancies and companies, whose expertise ranges across the mining value chain. We have previously worked with each of these teams, providing a level of familiarity that ensures we can 'hit the ground running'.

## Our partners



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## Orebody Analytics: Turning technical knowledge into options & value

### Why

The underlying value of any mining project is the resource itself. But project risks, opportunities and options need to be made available to Senior decision makers clearly and efficiently.

A full understanding of these issues requires a full grasp of the physical, chemical, temporal and spatial characteristics of the orebody. So, our first step is always to build deep knowledge of the orebody before developing possible options. Clients require insightful information, provided quickly and reliably to reduce risk exposure. That requires asking lots of questions in complex datasets (ie intricate work) and interpreting the outcomes.

However, nothing existed that efficiently and effectively interrogated mining related databases and models. This led us to develop our own proprietary orebody analytics tool, which captures decades of our mine planning, operational and studies know-how - with accuracy, repeatability and flexibility, for wide ranging application. We call it *EyeMine*.

### How

*EyeMine* is our proprietary analytical suite, built on the *Tableau™* software platform. The analytics suite leverages our collective 100+ years of industry experience to reveal the value drivers impacting your project.

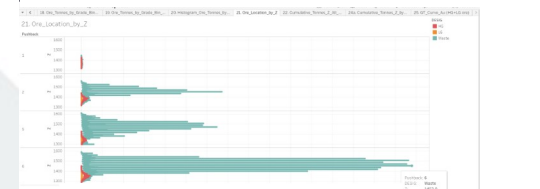
*EyeMine* is fully operational and provides a fully integrated and insightful analyses of DHDB, Resource & Reserve models, Mine Schedules and Production data – chemical, physical, spatial, temporal and financial. If its coded in the model, then we can analyse it. Smart outputs allow follow-on 'deep dive' queries of the outputs.

### Benefits

- Proactively applying relevant query sets, instead of relying on discrete and reactive queries.
- Translating complex orebody datasets into incisive, easy to understand information.
- Providing quick and robust method to develop new value from orebody insights.

## EyeMine output examples

### Ore and Waste tonnage by RL and pushback



### Ore tonnages by material type, binned by grade



### Ex-pit costs per material type and pit shell





# David Wandel

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David has spent over 25 years working with both mining houses and mining contractors in a variety of management and engineering roles.

He brings a wealth of experience, passion and commitment to each project.

Recognised for his strengths in project delivery and leadership, David unlocks the value of a project by focussing on the bigger corporate picture, while remaining across operational detail.

## Education, Qualifications and Memberships

- B.Eng. (Honours) Mining Engineering – University of South Australia (1992)
- Quarry Managers Ticket – WA Mines Department (1997)
- Member of Australian Institute of Mining and Metallurgy (MAusIMM)

## Achievements and Highlights

### Mine Development and Operational Strategy

- Developed operational strategies for all West Australian BHP Billiton Ore mine expansions through the study phases.
- Developed and implemented the Area C operational strategy to ramp up production from 10Mtpa to 23Mtpa and managed the feasibility study to expand production to 42Mtpa.

### Mine Planning and Design

- Developed tactical mine plans for Hamersley Iron Paraburdoo so that pits separated by 20km in steep terrain worked to plan.
- Created BHP Billiton’s first Mining Hub by developing all mine plans and operational systems to implement the Area C feasibility study.
- Developed the Burton Coal mine designs and life of mine plans for the operation.

### Mining Methodology

- Devised the method to mine below the water table at Yandi.
- Developed the mining methodology for Jimblebar, a large-scale mining operation with approximately 200Mtpa of total mining effort for BHP Billiton Iron Ore.
- Advised on future ore processing plants and recommended mining methodology, equipment, and associated infrastructure.

### Operational Readiness and Improvement

- Delivered operational readiness plans for all BHP Billiton Iron Ore approved mine expansions from the study phase through to operation, including improvements to enhance the business value defined in the feasibility study.
- Managed Operational Readiness to create the Newman Joint Venture Hub, by integrating the processes of four individual mines into a single operation.



## EMPLOYMENT HISTORY





# Pat Cesare

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Pat has more than 25 years experience in mine operations. Originally working in earth sciences/resource management, he specialises in technical services, study management, business development and governance.

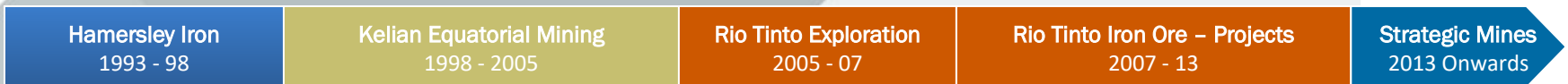
Experience in bulk commodity and precious metal resource development and open pit mining, in Australia and Asia producing value-added results often in remote and difficult conditions.

Pat is a Graduate and Fellow of Leadership Western Australia, a Graduate of the Australian Institute of Company Directors and a Board Director with Perth Region NRM.

## Education, Qualifications and Memberships

- B. Science (Honours) Geology – University of Adelaide (1993)
- Master of Science, Mineral Economics – Curtin University of Technology WA (2003)
- Graduate and Fellow, Leadership Western Australia (LWA) (2011)
- Graduate, Australian Institute of Company Directors (AICD) (2013)

## EMPLOYMENT HISTORY



## Achievements and Highlights

### Project Development and Study Management

- Introduced 'venture capital' styled systems at Rio Tinto Iron Ore (RTIO) for innovative projects to be tested and assessed.
- Coordinated multi-disciplinary teams to develop RTIO deposit investigations, technical studies, engineering designs, stakeholder engagement, environmental and government approvals to produce project specific business cases, with robust value propositions and manageable risk profiles.
- Studies successfully delivered include: Marandoo Mine Phase 2 PFS and FS, Brockman 4 Phase 2 FS, Greater Nammuldi PFS and FS and Silvergrass East PFS.
- Post investment (actual vs planned) reviews of completed projects.

### Mine Development and Operational Strategy

- Managed Rio Tinto Iran camp activities and the site team to successfully deliver the resource estimate for the BFS. Coordinated the site team and enabled the collection of topographic, environmental, geochemical, geotechnical and community baseline information.

### Technical Services

- Managed near mine exploration, mine geology, grade control, geotechnical and hydro-geology teams for Kelian Equatorial Mine Indonesia . Introduced an integrated mine geology and grade control system. Worked in close liaison with mine production, mine planning and plant metallurgical teams.
- Project management of mine closure investigations, civil engineering and regulator certification of permanent structures.

### Geology

- Responsible for resource reporting and grade control systems at Hamersley Iron Paraburdoo. Worked in close liaison with mine production/planning and processing teams.
- Supervised teams conducting exploration, resource investigation/evaluation, modelling and grade control activities.





## Ross Richardson

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Ross has extensive mine planning technical expertise and operational knowledge. This allows him to understand issues over a range of levels - operational to strategic - and to identify where opportunities may exist. He has held a range of senior technical and management positions within the industry.

### Education, Qualifications and Memberships

- Bachelor of Engineering (Mining) – University of New South Wales
- Master of Business Administration – Deakin University
- Member Australasian Institute of Mining and Metallurgy (AusIMM)
- NSW CMQB Certificate of Competency as a Mine Examiner
- West Australian Quarry Managers Certificate

### Achievements and Highlights

#### Technical Expertise

- Development of mining plans over a range of study levels for a diverse portfolio of projects. These included mining method selection, fleet estimation requirements, cost estimation and pit design.
- Manager of Technical Services for Atlas Iron, supporting operating sites and delivering plans across a range of planning time horizons.
- Planning and scheduling expertise across a range of time horizons: daily, weekly, monthly, yearly and 5 yearly time periods at BHP's Whaleback Operation.
- Assessment of development options for the BHP Area C Operation. Identification of infrastructure and pit development requirements for medium to long term operational continuity.
- Evaluation of new resources held by Hamersley Iron in conjunction with metallurgists, geologists, business analysts. Delivered a broad range of technical outputs: mine designs, production schedules, equipment needs and operational risk assessment.

#### Operations Management

- General Manager and Registered Manager, Koolan Island Operation, with responsibility for full site operation.
- Numerous Superintendent positions across BHP Billiton Iron Ore, Mount Gibson Iron and Hamersley Iron, incorporating management of technical staff, following through to the implementation of plans and contract management.



### EMPLOYMENT HISTORY





# Rodney Drown

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Rodney has more than 20 years' experience in mine engineering across a range of commodities.

He is a technical planning specialist with a proven track record in planning for specific market conditions and business scenarios, enabling businesses to make informed decisions.

Rodney has experience in both project and management roles and has worked in open cut and underground environments. He has worked in Australia, Africa and South America.

## Education, Qualifications and Memberships

- B. Engineering (Mining) – Curtin University (1996)
- Member of the Australian Institute of Mining and Metallurgy (AusIMM)
- Associate of the Western Australian School of Mines

## Achievements and Highlights

### Mine Development and Technical Planning

- Provided technical expertise in mine optimisation, design, scheduling for multiple mine and commodity projects for BHP Billion Iron Ore and Bauxite operations in BHP Billiton Suriname.
- Developed strategic mine design, schedules and option studies for Vimy Resources Mulga Rock Definitive Feasibility Study.
- Provided Mine Design, optimisation, and optimised mine schedules on multiple fleet and mine methodology options for the Pre-feasibility and Definitive Feasibility studies carried out on a 3.5Mlb.p.a. Uranium Mine for Vimy Resources.

### Project Pipeline

- Delivered projects for BHP Billiton to extend iron ore output from 100mtpa to 250mtpa
- Delivered technical planning expertise on mine pre-feasibility and feasibility plans for international bauxite operation with a US\$800 million investment.
- Provided strategic planning expertise for BHP Rapid Growth Operations.

### Operations

- Delivered mine feasibility and project due diligence on BHP Billiton future mines
- Operational performance improvements in profitability and safety efficiency by optimising 5 year mine plans in the Yandi/Yarrie and Whaleback Mine hubs.
- Managed start-up operations for KalNorthGold Mines
- Managed external contracts, governmental licences for mine operation, mining excavation and mine management contractors for KalNorthGold Mines and KMG operations.



## EMPLOYMENT HISTORY







## Natalie Quinlan

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Natalie has worked for more than 20 years in administration roles, including many years spent on site for international mining companies.

Renowned for her organisational skills, Natalie's experience ensures that the Strategic Mines office operates smoothly and effectively.

This in turn allows our team of mining professionals to focus on the delivery of technical advice with the confidence that Natalie will address any client-related matters efficiently and professionally.



## Lisa Cesare

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An experienced Certified Practice Accountant with a Bachelor Business (Accounting) from Monash University. She has an extensive experience base, having worked in the resources, information technology and non-profit disability service industries.

Skilled in Financial and Management Accounting in private and public listed companies.

Lisa ensures our team of mining professionals can remain outcomes focused, while she looks after essential 'back office' duties.