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**Mine Management / Mining Consulting / Business Improvement**

**Executive Summary**

* Twenty years+ in managing underground and open pit gold and metalliferous mines in Australia and overseas. Majority of roles included design, governmental approvals and construction of site infrastructure. Five years as a Mining Consultant / Business Improvement Specialist in Australia, Russia, Ghana, Mongolia and Philippines
* Four and a half years with the Western Australian Department of Mines. Two and a half years as District Inspector of Mines in Kalgoorlie / Deputy Regional Mining Engineer & two years as Special Inspector of Mines *(Ventilation)*/Senior Ventilation Engineer, Karratha.
* Mining Consultant – design, Regional Mines Department approval and start-up of a new, decline-accessed only underground mine at Suzdal Gold Project in Kazakhstan. Site visits and due diligence studies/evaluations of various mining projects for potential purchasing in Kazakhstan and Kyrgyzstan *(2004 - 2005)*.
* Mining Consulting – Business Improvement in Australia, Ghana *(AngloGold Ashanti Obuasi Gold Mine)*, Russia, Mongolia, and Philippines.
* Site Director and Consultant, Far East Siberia Russia - Nezhdaninskoye Gold Project *(2002 – 2003).*
* Executive Manager Mining - managing 1.5km deep, 8.5km long and >4,000 personnel, 2.2M T/year 380,000oz/year AngloGold Ashanti Obuasi Gold Mine with various mining methods including underground, open pit and old tailings retreatment - *then (2009-2010)* the biggest operating gold mine in Ghana.
* Contract mine management in Australia *(u/g & o/pit gold, u/g nickel, o/pit iron ore)*, including highly seismically active, then *(2007)* the deepest gold mine in Australia *(Hill 50 - Mt Magnet Gold Mine, Harmony)*.
* Four years in development and operating a private mining company Ausvac Mining Pty Ltd specialising in recovery of mine floor material on both nickel and gold mines in Australia with Underground Mobile Supersucker *(UMS)* – first one in Australia *(possibly first one in the world)* – a giant highly efficient mobile underground and surface vacuum cleaner.

**Significant Achievements**

* Requested by AngloGold Ashanti in March 2011 to return to Obuasi for one *(1)* year to assist in completing the Projects commenced during tenure 2009 – 2010. *(Resigned due to contracting malaria).*
* Whilst managing Long Shaft Victor Complex at Kambalda Nickel Operations *(KNO)* responsible for ~40% of total KNO nickel production *(total KNO output 37K Ni tonnes / year).*
* In 2001, at the Central Norseman Gold Corporation *(CNGC – 50.5% owned by WMC Resources)* led the Mining Team to the highest sustainable gold production in the 65 years Company history *(128,300oz/year)* with C1 and C3 costs being in the first quartile of the cheapest gold producers in the world with gold price ~US$320/oz. and excellent safety record – in very narrow vein mining operations.
* Initiated and implemented 12-hour continuous roster system and various payment systems.
* Designed alternative capital mine access and hoisting system for small tonnage, high-grade underground deposits – an upgrade/modification of old designed previously used in Norseman and elsewhere in Australia.
* Designed and successfully commenced a fully approved, cost efficient Australian style underground gold mine decline accessed only at Suzdal Gold Mine near the town of Semipalatinsk in Kazakhstan with first ore mined within 2.5 months from commencement of the decline with access from surface/pit portal.
* Conceptualised and developed Australia’s first mine floor recovery system with a truly mobile underground supersucker – a giant highly efficient vacuum cleaner to recover ore lying on the underground floors of ore drives and stopes. Successfully completed several *(8)* practical hands-on underground trials on various mine sites in Australia. Achieved floor material recovery rate of up to 80tonnes+ in a 24hr period in a typical ore drive or horizontal/semi-horizontal excavation *(a 500% increase from the initial 8.0t/shift with two operators).* **~Aus$700,000 - Aus$3,200,000/month+++** before-tax extra profit, depending on grade and gold price ***(an-extra profit which normally goes to waste).***
* Designed and fast implemented a grade enhancement T-bone stoping mining method *(40% grade increase).*
* Designed and fast implemented then Australia-first one-pass separation blasting to significantly increase ore-driving grade with the prototype TMU mini-jumbo *(with 193m/month achieved in March 2000+).*
* Implemented high-grade stopes wash-downs with water.
* Australia-first diamond wire saw trial for narrow-vein pillars *(used UG in South Africa)* and in granite quarries in Australia.
* Fundamental productivity improvements – **up to 270% with no pay increases** on a flat-rate payment system.

**Qualifications**

* Bachelor of Engineering - Mining *(Honors)*
* Western Australian First Class Mine Manager’s Certificate of Competency *(Metalliferous)* No 284, 1989
* Western Australian First Class Mine Manager’s Certificate of Competency *(Coal)* No A-1-89, 1989
* Western Australian Driving Licence No. 3473215

**Skills**

* Personnel management, development and mentoring of operational and technical employees – mine workers included
* Tender evaluations, preparations and negotiations
* Feasibility studies, evaluation and starting-up new underground mining projects, mine infrastructure included
* Operational and capital budget management *($ AU 100M),* financial evaluations
* Non-compromising approach to safety management
* Innovative and practical, as evidenced by a consistent record of implementing unique initiatives and systems to minimise ore dilution, improve safety, productivity and reduction of costs; showing/displaying 2 years + trends
* Management and changeover from owner – operator workforce to contractor workforce
* Managed seismically active nickel mines at WMC P/L KNO Long Shaft Victor Complex and Harmony Hill-50 Gold Mine at Mt Magnet, WA
* Management of narrow-vein high-grade gold mines *(Central Norseman Gold Corporation)*
* Languages: English – fluent; Polish - native tongue; Russian – fluent - no interpreters required

**Professional Experience**

*Ausvac Mining Pty Ltd, Perth WA, March 2010 – to date*

**Mine Management, Business Improvement, Mining Consulting Assignments**

Assignments included;

* **Alternate Underground Manager** | Mt Magnet | Ramelius Resources Pty Ltd WA, *(Nov 17 – Feb 19)*
* **Business Improvement / Mining Consulting** | TransSiberian Gold – Far East Russia Kamchatka Peninsula *(Aug 2012 & Aug 2017)*
* **Project Manager –Underground Water Tank Hill** | Mt Magnet Ramelius Resources, WA, *(Jul 16 – Feb 17)*
* **Business Improvement Mining Consulting** | Australia, Russia for McMahons *(Khabarovsk Region)*, Mongolia and Philippines / **ASX Appointed Director of Operations** of MUB Mongolian underground gold operations *(2013)*
* **Alternate Resident Manager/General Manager and Mining Manager** | Kentor Gold near Meekatharra WA; running five *(5)* open pits and UG gold mining re-start/de-watering *(2012)*
* **Manager Mine Projects** Member of Task Force to Long-term fix the Obuasi Gold Mine | AngloGold Ashanti, Ghana *(Mar 2011 – March 2012)*
* **Owner/Operator** Norseman Gold NL, Norseman WA| Recovery of high-grade gold bearing mine floor material at the Harlequin Underground Gold Mine *(Nov 2010 – Jan 2011)*

*AngloGold Ashanti Obuasi Gold Mine, Ghana, 2009 to 2010 (1.5 years - based in Ghana)*

**Executive Manager – Mining**

* Responsible for safety and all mining activities, including all surface mining (open pits and tailings reclamation) for an operation employing + 3500 personnel underground, producing 2.2 million tonnes of ore for 380,000oz per annum, with fully mechanized long-hole cemented cut and fill and sub-level caving stoping methods, from several sub-vertical ore bodies 3m – 40m wide, 8.5km long along the strike and 1.5km deep. Lateral development was then performed by hand-held techniques up to 2,000m/month
* Initiated and successfully introduced/implemented daily updated mine production and safety graphs across all sections of the mine to ensure all mine employees *(all mine workers included*) knew gold production and safety record *(showing 2-years+ trends).*
* Initiated the installation of underground crib rooms/refuge chambers, meal deliveries for the underground workforce, industrial washing and drying machines for the workforce in surface change rooms, purchased personnel carriers for underground workforce.
* Introduced 12hrs continuous roster system underground in line with similar rosters in other parts of the world
* Introduced tele-remote mucking to replace line-of-sight technique in open stopes, remotely controlled rock breakers to operate inside stope voids, IT service vehicles, charge up machines underground, Two-stage air-leg machines to replace single-stage ones for correct ground support installation and more efficient drilling.
* Improved safety underground through the purchasing of light - weight cap lamps, replaced the use of steel piping with poly piping; fast introduced flexible ventilation ducting to replace expensive spiral steel ducting.
* Designed and led the introduction of Longitudinal Retreat Mining Method *(LRMM)* in narrower orebodies, to eliminate extremely costly and time-consuming waste footwall development for ore-body definition diamond drilling.
* Introduced and implemented several managerial initiatives to improve communication, safety and production
* Came up with several technical changes/initiatives underground *(e.g. centralized firing, new blasting agents, leaky feeder communication and many, many more).*

*Ausvac Mining Pty Ltd, Kalgoorlie-Boulder/Perth, WA, 2005 to 2009*

**Mine Management, Business Improvement, Mining Consulting**

* **Mining Consultant** - Business Improvement for the AGA Obuasi Gold Mine *(three times/trips in 2008 – 2009)*
* **Consulting work** on underground narrow-vein mining at Aginskoye Gold Mine on Kamchatka Peninsula, Far East Russia, *(2008)*
* **Contract Manager Mining at Windarling/Mt Jackson** iron ore open pit operations for Portman Iron Ore Limited, Western Australia *(WA)*; 7.2mln t/year iron ore production from a multi-pit operation *(2008)*
* **Contract Mine Manager of Hill 50** - highly seismically active, then deepest gold mine in Australia *(1.5km)* and St George underground mine, Harmony Gold, Mt Magnet WA; 500,000t ore for 85,000oz/year production *(2007).* Introduction and fast implementation of rock-burst resistant cone bolts.
* **Contract Mine Manager** of Argo and Junction underground gold mines at St Ives Gold Mines, Goldfields, Kambalda, WA with 700,000t ore for 120,000oz/year production *(2005 – 2006).*
* **Operator** Mine floor material recovery with UMS in WA’s and Victoria’s underground mines *(nickel and gold)*.

*Celtic Resources Holdings Plc., Suzdal Gold Project, Semipalatinsk, Kazakhstan, 2004 to 2005 (13 months)*

**Mining Consultant**

* Design, approval and start-up of a new, **decline-accessed only** *(first one in Kazakhstan)* underground 100,000oz/year gold mine at the Suzdal Gold Project located some 70km from Semipalatinsk in North-East Kazakhstan.
* Overseeing/controlling a multi-pit mining operation and construction of site accommodation and office facilities.
* Various due diligence studies/projects evaluation work including site visits in Kazakhstan and Kyrgyzstan.

*Ausvac Mining Pty Ltd, Kalgoorlie-Boulder, WA, 2003 to 2004*

**Owner/Director/Operator**

* Established a company specialising in underground mine floor clean-down
* Designed and constructed one of the world’s first truly mobile underground supersucker *(UMS)* – a giant highly efficient mobile vacuum cleaner. The UMS together with other auxiliary equipment, forms part of a mine floor material recovery system, aimed at the enhancement of return on mine investment, i.e. providing an extra revenue through the reclamation of material that is normally lost in the course of “normal” mining activities.
* Conducted floor material recovery projects on gold and nickel mine sites in Australia including Mt Pleasant, Placer Dome, Otter-Juan Kambalda, Cosmos Nickel Mine, Agnew Gold Mine, Long-Victor Complex, Redross at Mincor in Widgiemooltha, Norseman Gold and Bendigo Gold Mine in Victoria.

*Celtic Resources Holdings Plc. Nezhdaninskoye Gold Project, Far East Siberia, Russia, 2002 to 2003 (11 months)*

**Site Director, Mining Consultant**

* Staffing of management and workforce was based on a fly-in fly-out roster system, with up to 200 personnel on site with continued gold production from underground operations.
* Providing advice to the company on all aspects of Nezhdaninskoye Gold Mining Project, a project with more than 20 million ounces of gold, and 150 million ounces of silver in reserves.
* Ensuring that strategic goals of the company were met.
* Day to day running of an underground gold project with Russian management and workforce *(~200 Russian staff)*, and a limited number of expatriate staff on site *(2 to 4),* in an environment down to **minus 52degree Celsius temperature**, underground permafrost conditions and communication and supply / logistical challenges due to its remote mountainous terrain and low temperatures during winter time.

**Mine Engineer** *(2002)*

* Mine feasibility studies and mine equipment selection.
* Preparation of short, medium and long term mine forecast and budgets.
* Establishment of gold production monitoring and reconciliation systems *(mine to mill).*
* Preparation and review of documents for submission to Russian Authorities.
* Close liaison with all departments to ensure safe and efficient running of the operations.
* Design and re-construction of the existing office/surface facilities and infrastructure to cater for low winter temperatures.

**Employment History Pre 2002**

Central Norseman Gold Corporation Ltd, WA (51% owned by WMC) 1997 to 2002

**Manager Mining** *(2001 – 2002)*

**Mine Manager** *(2000 – 2001)*

**Manager Mining Projects** *(1999 - 2000)*

**Technical Services** Manager *(1999)*

**Manager Mining** *(1997 - 1999)*

WMC Resources Ltd Kambalda Nickel Operations, WA, 1992 - 1997

**Registered Mine Manager** Long Shaft Victor Complex

**Underground Manager** *(various UG Nickel Operations in Kambalda)*

**Assistant Underground Manager** Long Shaft

Western Australian Department of Minerals and Energy, WA 1987 – 1992

**District Inspector of Mines; Deputy Regional Mining Engineer, Kalgoorlie**

**Special Inspector of Mines (Ventilation)/Senior Ventilation Officer, Karratha**

Forklift Engineering (Aust.), Melbourne, Australia 1986 to 1987

**Design Engineer (working as Mechanical Engineer)**

Regional Mines Rescue Station, Walbrzych, Poland 1981 to 1985

**Mines Rescue Superintendent**

Walbrzych Underground Colliery, Poland, 1977 to 1981

**Acting Section Manager, Mine Foreman, Underground Supervisor/Shift Boss/Deputy, Trainee Mining Engineer**

**Special Courses**

* Various Senior Management Courses
* SAP Integrated Management System
* Contract Management Courses and Training
* Various Safety Courses
* Various Accident Investigation Courses
* Computer Courses (Excel, Word, Typequick, Power Point, Microsoft Project)
* Rock Mechanic Courses
* Mine Blasting Courses
* Mines Rescue Courses
* Datamine
* Whittle open pit optimisation

**Referees**

Names and current contacts of Referees are available on request (in Australia, Russia, Kazakhstan and Ghana)

**Publications**

Lowering Risk in Complex Mineralisation: Application of Mobile Supersucker Development – Complex Orebodies 2018 AusImm Conference 19 – 21 November 2018 Brisbane; Co-author Dr. S C Dominy.

Why do Governments Allow Mining Companies to Leave Behind Never to be Recovered High-grade Capitally Accessed Broken Ore Underground I.e. Wasting Billions of Dollars? - Energy Mines and Money Australia Conference – Brisbane 20 – 21 June 2018.

Why Do Shareholders and Mining Executives Allow Mine Managers to Leave Behind High-Grade Broken Ore Underground? Proceedings of the Australian Institute of Mining and Metallurgy *(AusIMM)* International Narrow Vein Mining Conference, Perth Western Australia, 26-27 March 2012.

Recovery of Broken Ore Stocks Left on the Mine Floor and Other Applications of Underground Mobile Supersucker”, Proceedings of the AusIMM Narrow Vein Mining Conference, Ballarat, Victoria, Australia, 14-15 October 2008. **Member of the Conference’s Organising Committee.**

“Lowering Orebody Risk in Complex Gold Veins – Application of Underground Mobile Supersucker Winzing”, Proceedings of the 5th International Mining Geology Conference, Bendigo, Australia, November 2003 *(with Dr Simon Dominy)***.**

“Attaining Proven Reserves Prior to Capital Commitment”, the Australian Institute of Mining and Metallurgy *(AusIMM)*, Proceedings of the Underground Operators’ Conference, Townsville, Australia, July 2002.

“One-pass Separation Blasting at CNGC Bullen Mine” – WMC Mining Conference, 7-8 October 1999, Kalgoorlie, Western Australia.

“Alternative Mine Access, Mining and Hoisting System for Underground Deposits”, Balkema, Proceedings of the 9th International Symposium on Mine Planning and Equipment Selection, Athens, Greece, November 2000.

Title as above, the Australian Institute of Mining and Metallurgy, Proceedings of the MassMin2000 International Conference, Brisbane, Australia, November 2000.

Underground Supersucker Winzing - Defining the Mining Environment”, Balkema, Mining in the New Millennium – Challenges and Opportunities, Proceedings of the American-Polish Mining Symposium, Las Vegas, Nevada, USA, October 2000.

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