

# Michael Smith

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## Profile November 2021

**NAME:** MICHAEL JAMES SMITH

**ADDRESS:** 43 Hereford Avenue  
Trinity Gardens  
South Australia, 5068

**TELEPHONE:** Mobile: +61417395637

**EMAIL:** [mjsblasting@bigpond.com](mailto:mjsblasting@bigpond.com)

### Highlights

- 40 years experience blasting in over 280 surface and underground operations in the construction, mining and quarrying extractive industries throughout Australia and internationally.
- Bachelor of Engineering (Mining) 1988
- Member of the Australian Standards committee for review and implementation of AS 2187.2 2006 Use of Explosives. (2001-2006)
- Certificate 1V in Training and Assessment
- Developed, implemented and facilitated over 300 training courses and workshops for surface and underground drill and blast operations from basic explosive awareness to approved shotfiring permit courses to advanced blast design and blasting in highly sensitive environments.
- Developed, implemented and facilitated approved surface and underground shotfirers courses in all states and Territories of Australia. Currently approved to run shotfirers courses with Nationally recognised training throughout all Australian states and territories. (1998 – current)
- Provide on site consult/training/mentoring/auditing role for drill and blast function to facilitate and implement safe and cost-effective drill and blast and related impacts on downstream functions (load, haul, primary crushing) in the following open pit operations.
  - : B2 Gold/Filminera Masbate Gold Project (Philippines) (Feb 2014-2020)
  - : Sabodala Gold Operations (Senegal, Africa) 2018-now)
  - : Vienta/Fronterra Cobre Del Mayo Copper (Mexico) (2015-2019)
  - : Barrick Lumwana Copper Operations (Zambia) (2014 – 2019)
  - : Harmony Hidden Valley Gold Ops (PNG) (2016 -2018)
  - : Victoria Gold Eagle Gold Ops: Yukon, Canada : 2018 – 2019
  - : Barrick Porgera Operations (PNG) : 2017
  - : Evolution Mt.Carlton Operations : Qld, Australia: 2017-2018
  - : B2 Gold Fekola Operations : Mali : 2019 - current
  - : SMK Yanfolila Gold Operations : Mali : 2020 – current
  - : B2 Gold El Limon Gold Mine, Nicaragua : 2019

- **Provided on site drill and blast expertise for the rescue of trapped miners at Beaconsfield underground gold mine in Tasmania. (2006).**
- **On site Consultancy/supervision role for design and application of blasting with explosives in an extremely environmentally sensitive construction site due to significant indigenous heritage sites, environmental factors and infrastructure:**
  - : FMG Iron Bridge CRWP project: Consultation for specialised design and application of explosives blasting for pipeline trench in very close proximity to significant indigenous heritage artifacts and rail infrastructure on the FMG Iron Bridge project (2021 - current)**
  - : FMG Eliwana rail project: Consultation for specialised design and application of explosives blasting in very close proximity to significant indigenous heritage artifacts on the Eliwana rail alignment (2020)**
  - : Solomon Mine recovery of indigenous heritage artifacts using highly sensitive controlled explosives blasting techniques (2016)**
  - : MacMahons/Leightons JV contract at BHP Billiton RGP5 rail duplication. Highly sensitive specialised blasting alongside live rail and indigenous heritage artifacts (Jan 2010 – September 2010)**
  - : Dampier Highway Duplication in highly sensitive blasting zone alongside Indigenous heritage and public utilities for client (WA Main Roads) (June 2010 – 2012)**
  - : FMG Rail duplication project alongside live rail. Highly sensitive blasting in close proximity to significant indigenous heritage areas. (April 2011 – December 2012)**
  - : BHP Inner Harbor Project. Highly sensitive blasting alongside live rail for new Mooka marshalling yard and Ore Car Repair Workshop (November 2011 – November 2013)**
  - : Foster Wheeler Worley Parsons (EPCM) Woodside Pluto LNG plant. (April 2007 – June 2011). Over 670 blasts including recovery of heritage artifacts using highly sensitive controlled blasting measures**
  - : Northside Storage Tunnel Alliance project, North Shore, Sydney**
- **Major technical support for development and implementation of first bulk emulsion systems in tunnelling for Cheung Ching Tunnel in Hong Kong as part of Airport project.**
- **Major input into development, supervision and commercialisation of new, innovative explosive products such as underground bulk emulsion systems, Stopeprime, Trimex, lostat charging hose, Powergel Magnum 365, Impact low energy products and electronic detonators.**
- **Conducted training and trials of first bulk emulsion explosives in underground**

development mining at BHP Cadjebut mine in Western Australia

On site drill and blast practical training and audit/review for Byrnegut at Challenger and Capricorn Copper underground mining operations (March 2018 – 2020)

- Contract Drill and Blast Engineer (3 months) at Rio Tinto/Coal and Allied Warkworth Coal Mine. Overall management of drill and blast operations including planning, design and scheduling.
- Developed, implemented and facilitated international drill and blast workshops for surface and underground operations at all levels from basic explosives awareness through to advanced engineering design and cost effective drill and blast management:

: Ghana  
: South Africa  
: Zambia  
: Philippines  
: PNG  
: Australia  
: Malaysia  
: Senegal  
:Taiwan  
:China  
:Singapore

- Developed and facilitated UNSW Key Centre for Mines postgraduate 5 day training course in Safe Drill and Blasting Management (1999 - 2003)
- 10 years with ICI /Orica Explosives as drill and blast engineer (3 years), underground consulting engineer (3 years) and business manager for SA/Tasmania (4 years) (1988 – 1998)
- Provide expert report and court duties for blasting causing structural damage to a residence in NSW.
- Provide expert report for SA Government Crown Solicitor regarding explosives incident causing injury in South Australia.
- Subcontracted consultancy role for extremely environmentally sensitive blasting in Lane Cove area for Northside Storage Tunnel Alliance project, North Shore, Sydney (2000)
- Prepare drill and blast designs for environmentally sensitive civil works for Chun Wo Construction company for Ocean Park redevelopment project in Hong Kong. (2007 – 2008)
- Established MJS Mining Services in 1998 to provide an experienced, quality explosives and blasting consulting and training service to the construction, mining and extractive industries.
- Services have included:
  - Explosives and Blasting training and assessment
  - Development/review/implementation/facilitation of company/site specific training packages for all levels of expertise.
  - Assessment of drill and blast requirements/parameters for project Feasibility Studies
  - Auditing of explosive systems including handling, storage, transport and use.
  - Advanced blast design in all areas of blasting including significant environmental and heritage sensitive blasting projects
  - Shotfiring
  - Consultancy/Supervision of blasting operations
  - Development/review/auditing of safe working procedures.
  - Trouble shooting/problem solving re explosives/blasting issues.

- **International experience includes:**

**Australia (open pit, underground, quarry, civil construction)**  
**Canada (underground, surface)**  
**China (underground, surface, quarry)**  
**Ghana (open pit and underground)**  
**Hong Kong (tunnelling, quarrying)**  
**Finland (open pit)**  
**Mali (open pit)**  
**Mongolia (open pit)**  
**Mexico (open pit)**  
**New Guinea (underground and open pit)**  
**New Zealand (underground, open pit)**  
**Nicaragua (open pit)**  
**Philippines (open pit)**  
**South Africa (underground and open pit)**  
**Senegal (open pit)**  
**Taiwan (tunnelling and quarrying)**  
**Tanzania (open pit)**  
**Vietnam (open pit, hydro project tunnels and civil construction)**  
**Zambia (open pit)**

- **Member of AUSIMM**
- **Member of International Society of Explosive Engineers**
- **Member of Engineers Australia**

## Detail

### June 1998 – Present      MJS Mining Services

#### (Domestic Australian market)

- On site Consultancy/supervision role for Foster Wheeler Worley Parsons (EPCM) at the Woodside Pluto LNG plant construction site. Oversaw the design and implementation of over 670 blasts on an extremely environmentally sensitive site due to significant heritage sites, environmental factors and infrastructure (gas and ammonia pipeline in close proximity). Supervise contractor (earthworks) and subcontractor (drill and blast) to maintain integrity of site. (April 2007 – June 2011)
- On site Blasting consultant role for MLJV contract at BHP Billiton RGP5 rail duplication. Highly sensitive blasting alongside live rail and heritage areas. Over 260 blasts (Jan 2010 – September 2010)
- On site Blasting consultant role for Dampier Highway Duplication in highly sensitive blasting zone for client (WA Main Roads) (June 2010 – December 2011)
- On site Blasting consultant role for FMG Rail duplication project alongside live rail. Highly sensitive blasting alongside live rail and heritage areas. (April 2011 – December 2011)
- Develop and facilitate approved and Nationally Recognised Training shotfirers courses for surface and underground industries throughout Australia
- Facilitate SA shotfirers training course at Oxiana Prominent Hill mine.
- Carry out explosives awareness training and shotfirer training for HWE and Dominion personnel at Challenger mine site.
- Develop and implement/facilitate recognized/approved SA shotfirers course for High Temperature

blasting at BHP Billiton Olympic Dam smelter works.

- Carry out risk assessment, development of safe working procedures and shotfiring supervision for Federal Transport and Customs live explosive cargo trials in Adelaide SA.
- Audit BHP Billiton Olympic Dam operations explosives transport, storage and handling systems.
- Provide onsite expertise and assistance for rescue of trapped miners at Beaconsfield gold mine in Tasmania
- Carry out risk assessment and provide drill and blast plan for environmentally sensitive drill and blast project for East Arm area, Darwin, NT.
- Provide expert report and court duties for blasting causing structural damage to a residence in NSW.
- Provide expert report for SA Government Crown Solicitor regarding explosives incident causing injury in South Australia.
- Develop and implement approved underground training course for Victorian shotfirers permit.
- On site competency based training for underground operations at Fosterville gold mine, Victoria.
- Authorised training provider for open cut and underground shotfiring courses for Northern Territory, South Australia, Tasmania, Victoria , Western Australia, Queensland and NSW.
- Development of explosives and blasting Training programs for Thiess Contractors.
- Facilitated authorized underwater shotfiring course for Northern Territory.
- Development and implementation of High Temperature Blasting training course at WMC Olympic Dam.
- Subcontracted consultancy role for extremely sensitive sewer shafts in Lane Cove area for Northside Storage Tunnel Alliance project, North Shore, Sydney
- Contract Drill and Blast Engineer (3 months) at Rio Tinto/Coal and Allied Warkworth Coal Mine. Overall management of drill and blast operations including planning, design and scheduling.
- Review of underground production and development blasting at Barmingo mining contractors operations at Lawlers, Wiluna, Jundee and Plutonic. Identified and commenced implementation of over \$5 million savings per annum between four operations.
- Underground production blasting review for Barmingo Mining contractors at Mt.Lyell and Renison mines in Tasmania (identified and implemented over \$400,000 per annum explosive cost savings)
- Drill and Blast Audit of Underground operations for Kanowna Belle operations

**(International market)**

- On site drill and blast consultancy/supervision for B2 Gold/Filminera Masbate Gold Project open pit operations. Develop and implement drill and blast optimization/tactical plan while overseeing drill and blast function to implement safe and cost effective drill and blast and related impacts on downstream functions (load, haul, crushing and pit wall integrity). (February 2014 - current)
- On site drill and blast consultancy/supervision for Invecta/Fronterra Mining Cobre Del Mayo Project open pit operations in Mexico. Develop and implement drill and blast optimization/tactical plan while providing direction and support to drill and blast function to implement safe and cost effective drill and blast and related impacts on downstream functions (load, haul, crushing and pit wall integrity). (May 2015 - 2019)
- On site drill and blast consultancy/supervision for Barrick Lumwana open pit operations in Zambia. Providing direction and support to drill and blast function to implement safe and cost effective drill and blast and related impacts on downstream functions (load, haul, crushing and pit wall integrity). (May 2015 - 2019)
- Drill and blast review of surface and underground operations for Bogoso Gold Limited in Western Ghana. (2005-2006)
- Drill and blast review of surface operations (Wassa Pit) for Wexford Goldfields Limited in Western Ghana. (2005-2006)

- Prepare drill and blast proposal re tender for environmentally sensitive tunneling/civil works for Chun Wo Construction company for Ocean Park redevelopment project in Hong Kong. (2007)
- Drill and blast review/fixing flyrock problem at Placer Dome North Mara gold mining operation in Tanzania. (2002)
- Supervision of blasting trials at Guxian gold mine tunnel, Shaanxi Province, China.
- Review of shaft sinking drill and blast practices at Pin Lin freeway tunnel project, Taiwan (12km tunnel)
- Project management for introduction of nonelectric detonators, emulsion explosives and bulk explosive systems into the Taiwan quarrying and tunnelling (involved with 6 major quarries and 15 major road and rail tunnel projects) over a 6 year period. (1998 – 2004)
- Review of drill and blast practices and provide technical service in Hong Kong tunnels and quarries.
- Carried out investigation of underground and open cut operations in the mining industry in Shandong Province for Orica Wehai. (1998-99)
- On site drill and blast consultancy/supervision for Sabodala Gold open pit operations in Senegal Develop and implement drill and blast optimization/tactical plan while providing direction and support to drill and blast function to implement safe and cost effective drill and blast and related impacts on down stream functions (load, haul, crushing and pit wall integrity). (2018 - current)
- On site drill and blast consultancy/supervision to B2 Gold Fekola open pit operations in Mali. Develop and implement drill and blast optimization/tactical plan while providing direction and support to drill and blast function to implement safe and cost effective drill and blast and related impacts on down stream functions (load, haul, crushing and pit wall integrity). (2019 - current)
- On site drill and blast consultancy/supervision SMK Yanfolila gold open pit operations in Mali. Develop and implement drill and blast optimization/tactical plan while providing direction and support to drill and blast function to implement safe and cost effective drill and blast and related impacts on down stream functions (load, haul, crushing and pit wall integrity). (2019 - current)

#### **1994 – 1998 ICI Explosives**

#### **South Australia, Tasmania**

##### **Business Manager**

- **Major role in assisting WMC Olympic Dam to develop and implement safe working procedures and competency based training system for explosives and blasting.**
- Management of a \$15 million per annum explosives business in two diverse states (Tasmania and South Australia)
- **Consulting roles in China( Shandong Underground Iron Ore Mines), Vietnam (Yali Hydro Scheme tunnel), and Canada.**
- **Supervised drill and blasting with first successful use of packaged emulsions in shaft sinking at Bounty mine , WA**
- **Supervised first cartridge charging of emulsion explosives in China at Laiwu Iron ore mines (1995)**
- **Supervised first use of packaged emulsions in Vietnam at Yali hydro electric tunneling project (1995)**
- **Supervised initial blasting for major freeway tunnel (Heysen tunnels) in South Australia.**
- Development and implementation of competency based training packages for local customers.
- **Consultation on drill and blast practices in shaft sinking at Olympic Dam Shaft No.3 for Allied Construction**
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**1990 - 1994**

**ICI Explosives**

**Sydney**

#### **Underground Consulting Engineer**

- Role included product management for all underground products with ICI Explosives including generation and implementation of new products into the commercial market.
- Development and implementation of competency based training packages for major customers throughout Australia and Asia Pacific.
- Major technical support for development and implementation of first bulk emulsion systems in tunnelling for Cheung Ching Tunnel in Hong Kong as part of Airport project.
- Major input into development, supervision and commercialisation of new, innovative explosive products such as underground bulk emulsion systems, Stopeprime, Trimex, Iostat charging hose, Powergel Magnum 365, Impact low energy products and electronic detonators.
- Conducted training and trials of first bulk emulsion explosives in underground development mining at BHP Cadjebut mine in Western Australia
- Blasting Engineer supervising and carrying out conversion of underground mines and tunnels from AN60 (Nitro glycerine based) explosives to packaged emulsion explosives in Australia.

1988 - 1990

ICI Explosives

Melbourne

#### **Technical Services Engineer**

- Consulting role in determining initial underground production mining method at Porgera, PNG
- Supervised some of the first trials of electronic detonators in Australia in the Victorian Quarry market
- Drill and blast Engineer to Victorian surface and underground mining and extraction industries.

1985 – 1988

Western Mining Corporation

Stawell, Vic

#### **Underground Miner**

- Airleg machine mining in shrink stopes, random pillar stopes, raising, and horizontal and angled development.
- Valuable practical experience at the face over a three year period.
- Development (tunnel) mining with first packaged emulsion explosives used in Australia.
- Sound practical knowledge of all commercial initiation systems from safety fuse to electric detonators to nonelectric detonators to electronic detonators.
- Overall obtained high level of experience and knowledge of mining at the face.

1981

Central Norseman Regent shaft, Western Australia

#### **Student Mining Engineer**

First exposure to explosives and blasting alongside experienced airleg miner using safety fuse and caps, AN60 nitroglycerine package explosives and Anfo in blastholes.

**Education:****1981- 1985****Ballarat C. A. E.****Ballarat, Vic**

Bachelor of Engineering (Mining).

1988-1993	Victorian Shotfirers Ticket (Black)
1991	Underground Mining Technology
1992	Esprit Strategic Selling Skills
1992	Presentation Skills Training
1994	Member AUSIMM
1994	Member Institute Of Quarrying
1994	Financial Management Skills
1994	South Australian Shotfirers Permit
1995	Managing for Performance
1995	Media Training
1995	Safety,Health and Environment Management
1996	Salepro Training Course
1996	Senior First Aid Certificate
1996	SAP Training
1997	Low Risk Driving Course
1998	Member International Society of Explosives Engineers
1999	Northern Territory Shotfirers Certificate
1999	South Australian Blasters Permit
1999	NSW Shotfirers Certificate of Competency
1999	WA Shotfirers Permit
2001	Tasmanian Shotfirers Permit
2001	Member, Australian Standards committee for review of AS2187 Explosives standards
2001	Certificate 1V in Training and Assessment (upgraded 2014)
2006	South Australian Blasters Permit (renewed 2020)
2006	Northern Territory Shotfirers certificate (upgraded 2015)
2007	Defensive 4WD driving course (renewed 2020)
2009	WA Shotfirers Licence
2009	WA Dangerous Goods Security Card (renewed 2020)
2010	WA Unrestricted Shotfirers Licence (renewed 2020)
2011	Senior First Aid Certificate

**Interests:****Health, Family, sport, wine, good food and learning something new every day****Software experience**

- Exel,Powerpoint, Word, Access, Project, Outlook Express, Lotus Notes.
- Shotplan/Shotplus ( drill and blast graphics package)
- 2D bench blast design software
- Detnet Digishot Plus training (5 day course)
- BlastPlan (blasting graphics package)