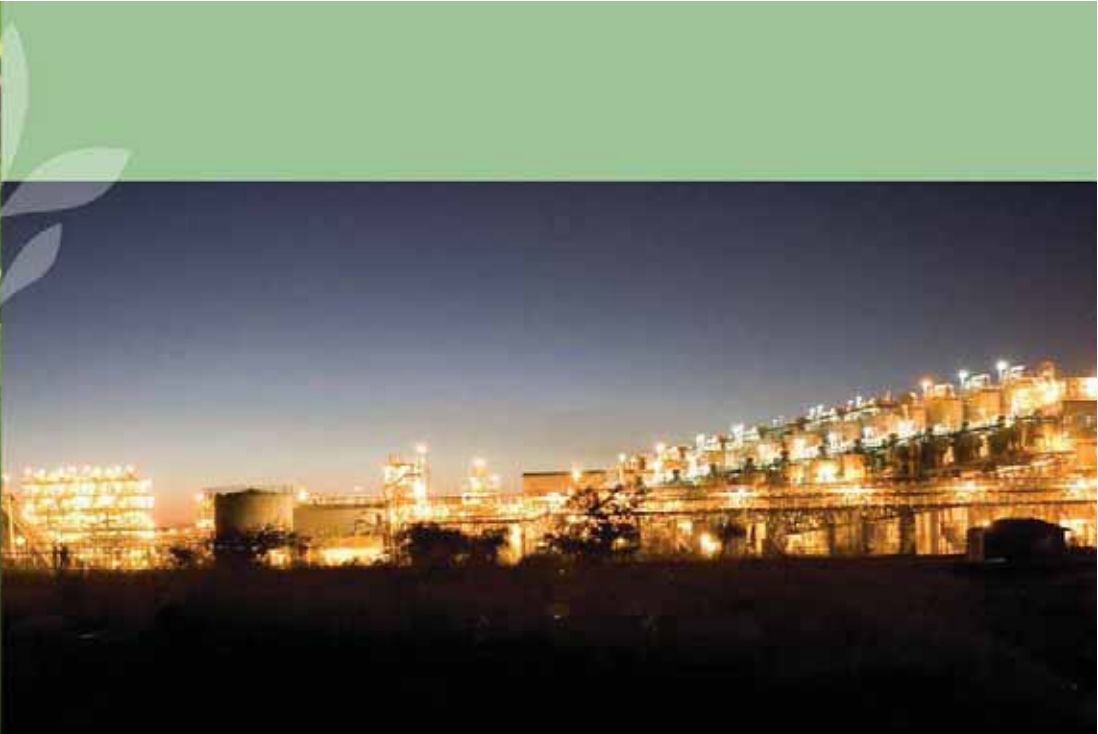


# Company Profile and Statement of Qualifications



mine residue and environmental engineering consultants



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# Company Profile

The founding of Epoch Resources in March 2005 heralded the arrival of a professional services organization offering more than forty years of combined experience in the fields of environmental and mining waste management.

Epoch Resources operates from offices in Johannesburg, South Africa and provides services across the African continent. At Epoch Resources we guarantee personal service and the delivery of quality and value to our clients.





## Service Excellence

Epoch Resources has the skills and resources to provide services in a variety of fields as outlined below:

### Mine Residue Disposal

The company's staff has extensive experience in conceptual, bankable feasibility, and detailed design of mine residue disposal facilities. This is complemented by practical experience in the construction and operational supervision of such facilities as well as expertise in the more technically challenging fields of tailings liquefaction and flow slide analysis.

### Due Diligence Investigations and Review

The company's staff is experienced in the application of their skills to providing input to due diligence investigations and independent third party reviews in their respective fields of expertise.







## Environmental Management

The company is well positioned to undertake a complete range of environmental management work that includes:

- Environmental Impact Assessment (EIA),
- Environmental Management Programmes and reports (EMP),
- Environment Management Systems (EMS, ISO 14001),
- Stakeholder consultation,
- Permitting,
- Environmental compliance and due diligence audits,
- Monitoring programmes, training programmes and onsite environmental programme coordination.

The company recently completed a number of SEIA's in compliance with the IFC's Performance Standards (2006) and the internationally accepted Equator Principles.

## Mine Closure Planning and Implementation

The company has staff specializing in the quantification of closure liabilities, the development and compilation of closure plans, specifications and the more practical aspects of setting up and managing rehabilitation and closure contracts.



## Surface Water Management

The company is able to provide a range of services in the field of surface water management, probabilistic water and salt balance models, and the technical aspects of water use licensing.

## Risk Assessments

A great deal of the work carried out in the areas described above is based on the identification and management of risks to the environment. We are therefore familiar with the various concepts and tools applied to both qualitative and quantitative assessments of risk and their application in the development of risk based design and remediation strategies.

## Areas of Operation

Epoch Resources is well positioned to offer its skills and resources to the mining industry across the African continent. Our staff has experience on projects in South Africa, Namibia, Botswana, Zimbabwe, Tanzania, Ghana, Mali, Lesotho, Armenia, Georgia, Malaysia, Australia, Mozambique, Zambia and Burkina Faso.





# Equity and Empowerment

## Employment Equity

The company does not discriminate against anyone in either our employment or sub-contracting practices. We are committed to ensuring that our workforce becomes representative of the demographics of the society in which we operate.

## Black Economic Empowerment

There is a critical shortage of skills in the fields of expertise within which we operate. Our Black Economic Empowerment (BEE) strategy is therefore to seek out and provide training opportunities to students and young graduates from previously disadvantaged communities and critically to retain these skills within the company with a view to company ownership. Our close links with the universities in the Gauteng area will play a major role in this regard.





## Strategic Alliances

We are mindful of the greater context within which we operate and have established a number of alliances with organizations operating in related fields, including:

- Local Universities
- Specialist Environmental and Social Sciences Consulting Companies
- Minerals Processing Consultants
- Process Design and Project Management Consultants.







## Clients



- Afilease Gold and Uranium One Resources
- Africa Geo-Environmental Services
- AIM Resources
- AngloPlats
- Barplats
- BE Morgan & Associates
- Blue Dot Properties 40
- Boynton Investments
- BSG Resources Chromex Mining
- De Beers Consolidated Mines
- Dowding Reynard & Associates
- Elands Platinum
- Eurasian Natural Resources Corporation
- Environmental Resources Management
- Forsyth Metals
- Fraser Alexander Tailings
- GRD Minproc
- Luanshya Copper Mines
- Manhattan Corporation
- Murray & Roberts Engineering Solutions
- Norilsk Nickel
- Paterson & Cooke Consulting Scientists
- Platinum Group Metals
- Platmin
- Prime
- Randgold Resources (FTSE 100 company)
- RSG Global
- Snowden Mining Industry Consultants
- Tati Nickel Mining Company
- Teal Mining
- Tharisa Resources
- Turnberry Projects
- Turgis Consulting
- Werksman Attorneys
- Williamson Diamond Mines
- Xstrata
- Zambia Consolidated Copper Mines



## Project Experience

Our staff has experience in the following areas:

- Closure Design and Project Management of Closure Works (South Africa)
- Conceptual Estimate of Life Cycle Costs for a Tailings Storage Facility (DRC)
- Tailings and Environmental Listing Review for a Mining Operation (Mali)
- Due Diligence Reviews of Tailings Storage Facilities, Environmental Compliance and Closure Provisions for Mining Operations (South Africa, Mali, Burkina Faso, Zimbabwe)
- Detailed Design, Construction Supervision and operational monitoring of Tailings Storage Facilities (South Africa, Lesotho, Botswana)
- Bankable feasibility designs of tailings storage facilities (South Africa)
- Development and updating of closure plans and cost estimates (Ghana, South Africa, Botswana)
- Liquefaction assessments of tailings (Australia)
- Environmental feasibility studies in a variety of industries, including mining, industrial and eco-tourism
- Environmental feasibility studies for various deposits including platinum, coal, gold and diamonds
- Environmental Impact Assessments for the mining, industrial and urban development sectors
- Environmental auditing and EMPR performance assessments
- Environmental due diligence in the mining and oil industries
- Mining closure plan development
- Visual impact assessments
- Geographic information systems
- Water use license applications







## Recent Projects

- Eland Platinum Mine - Brits, South Africa - Xstrata Platinum Ltd 2007-2010
- Perkoa Zinc Mine - Burkina Faso (Snowden Mining Consultants (Pty) Ltd/AIM (Blackthorn) Resources Ltd) 2005/2009/2010
- Tati Nickel Mine - Botswana (Norilsk Nickel Limited) 2005-2010
- Kolwezi Copper Mine - Democratic Republic of Congo (GRD Minproc (Pty) Ltd / Adastra Ltd) 2005
- Pilanesberg Platinum Project - South Africa (DRA SA (Pty) Ltd/ Boynton Investments (Pty) Ltd) 2006-2007
- Williamson Diamond Mine - Tanzania (De Beers (Pty) Ltd) 2007-2008
- Mpathlele Platinum Project - South Africa (DRA SA (Pty) Ltd/ Boynton Investments (Pty) Ltd) 2007
- Loulo Gold Mine - Mali (Randgold Resources Limited) 2007-2010
- Western Bushveld Joint Venture Platinum Project - South Africa (Turnberry Projects (Pty) Ltd/ Platinum Group Metals Ltd) 2008
- Mooihoek Chrome Mine Project - South Africa (DRA SA (Pty) Ltd/ Umnotho we Siswe Consortium) 2008
- Tongon Gold Mine - Ivory Coast (Randgold Resources Limited) 2008-2010
- St Helena Gold Project - South Africa (Harmony Gold Mining Company Limited) 2009-2010
- Massawa Gold Mine - Senegal (Randgold Resources Limited) 2009-2010
- Khibali Gold Mine - DRC (Randgold Resources Limited) 2010
- Luiiri Gold Mine - Zambia (Lachlan Star Limited) 2010
- Tabakoto Gold Mine – Mali (Avion Limited) 2010
- Tharisa Platinum - Marikana, South Africa 2009-2010
- Kameni Resources - Kalkfontein Platinum Mine, South Africa 2009-2010
- Keaton Energy - Cola discard dump, Delmas, South Africa 2009-2010



## Key Personnel

### GJ Wiid, BSc, MSc Eng (Civil), PrEng

Guy Wiid is a director of Epoch Resources (Pty) Ltd and is based in Johannesburg, South Africa. He is registered as a Professional Engineer with the South African Council for Professional Engineers. Guy was previously a director of Metago Environmental Engineers before leaving to start his own practice with his fellow partners.

Guy has been involved in the mining waste and environmental management field for 15 years during which time he has worked in the fields of power station and mining waste management, rehabilitation and closure design, implementation of environmental management systems, surface water management, due diligence investigations and project management of construction and rehabilitation contracts.

Guy's experience includes work on projects in South Africa, Namibia, Botswana, Mozambique, Zimbabwe, Mali, Tanzania, DRC, Ghana and Australia. His experience includes conceptual, feasibility and detailed design of tailings storage facilities, rehabilitation and closure design and project management, calculation of mine closure liabilities, design and implementation of environmental management systems, environmental and technical auditing and due diligence investigations.

Guy has worked on projects for a variety of local and international mining companies including BHP Billiton, Goldfields, AngloGold, Anglo American Base Metals, Angloplats, DeBeers, Debswana, Impala Platinum, Southern Era Resources, Aquarius Platinum and Afrikander Leases Gold and Uranium.





## Key Personnel

### G Papageorgiou, BSc, MSc, PhD Eng (Civil)

George has worked in the mining related sector since 1994 specialising in the field of mine residue disposal and water management and specifically in the design, ongoing monitoring and associated environmental impacts of tailings residue disposal facilities and associated infrastructure.

George completed his BSc Eng (Civil) at the University of the Witwatersrand in 1991, followed by a MSc Eng (Civil) in 1994 at the same University in field of Unsaturated Soils. He then obtained employment with Steffan Robertson and Kirsten Consulting Engineers, working in the tailings department. In 1995 George returned to the University of the Witwatersrand to complete a PhD Eng (Civil) in the field of tailings liquefactions and flow slide failures. In 1999 he was employed by Metago Environmental Engineers where he designed and managed various residue disposal and environmental projects. In 2003, George was appointed a Director of Metago and remained as such until 2005, when he resigned to start up Epoch Resources with his fellow partners.

George has been involved in all aspects of mine residue disposal projects in South Africa and internationally and his experience ranges from pre feasibility through to detail design, construction supervision and ongoing monitoring of such facilities, stochastic water and salt balances, tailings dam seepage assessments, liquefaction and flow slide assessments, storm water management and design, due diligences and technical reviews. In addition to the technical aspects of mine residue disposal facilities, George has been involved in Environmental Impact Assessments and Environmental Management Reports, providing input on aspects pertaining to mine residue disposal such as seepage assessments, environmental management measures, closure, hydrology, storm water management and overall mine water balances.





## Key Personnel

### A Savvas, BSc, MSc Eng (Civil)

Andrew Savvas is a director of Epoch Resources (Pty) Ltd, based in South Africa. Andrew has been working in the mining related sector since 1996 and has specialised in the field of mine residue disposal and environmental engineering. He was previously a senior consultant with Metago Environmental Engineers before leaving to start up Epoch Resources with his fellow partners.

Andrew has been involved in mine residue disposal and environmental engineering related projects in South Africa as well as Tanzania, Ghana, Lesotho, Namibia, Cyprus, Brazil and Australia. He has consulted to mining companies, such as Lonmin, Aquarius Platinum, Barrick Gold, DRD, Salene, Barplats, AngloGold and Gold Fields. Andrew's working experience has focused on the design of tailings storage facilities with specific emphasis on construction and operational issues, seepage and slope stability analyses, flow slide assessments, probabilistic water and salt balance assessments, and surface water management.

Andrew has also carried out a number of environmental liability assessments, due diligence investigations and technical reviews of mine residue disposal facilities and storm/surface water management systems.

In addition to the fields in which he currently specialises, Andrew has a range of experience in the related fields of Environmental Impact Assessments and Environmental Management Programmes.





## Contact Details

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Company Registration	Epoch Resources (Pty) Ltd, No 2005/007908/07
Directors	GJ Wiid, Dr. G Papageorgiou, A Savvas, SJP Coetzee



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