

Andrew Savvas

Director, Epoch Resources (Pty) Ltd



mine residue and environmental engineering consultants

BACKGROUND

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.

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 Xstrata, 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.

FIELDS OF COMPETENCE

- Due diligences and technical reviews of mine residue disposal facilities.
- Contract management of tailings dam, water dam construction projects.
- Preparation and adjudication of commercial and technical tenders.
- Design of hydraulic structures.
- Catchment hydrological investigations.
- Mine salt and water balance investigations.
- Dam break and flow slide analyses.
- Seepage, slope stability and settlement assessments.
- Prevention and control of contamination of water from tailings dams, spoil piles and other mining related sources.
- Tailings (mine residue) dam site selection, design, management and monitoring.
- Geotechnical field investigations
- Coordination and Compilation of Environmental Management Program Reports.
- Construction supervision and project management.
- Compilation of Codes of Practice (COP) for Mine Residue Deposits.

ACADEMIC QUALIFICATIONS

- BSc (ENG) Civil (University of the Witwatersrand 1994)
- MSc (ENG) Civil (University of the Witwatersrand 1996)

PROFESSIONAL REGISTRATION

Currently in the process of registering as a Professional Engineer in the Republic of South Africa.

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

PROFESSIONAL MEMBERSHIPS

None

KEY PROJECTS**EALND PLATINUM TAILINGS FACILITY, DETAILED DESIGN, CONSTRUCTION SUPERVISION, MONITORING. BRITS, SOUTH AFRICA, 2006-2008****PROJECT MANAGER**

Undertook the conceptual and detailed design of the Eland Platinum Rockfill Impoundment Tailings Facility. The design entailed the construction of a 15million m3 rockfill wall for the impoundment of platinum tailings.

GRD MINPROC. KOLWEZI TAILINGS COPPER PROJECT. BANKABLE FEASIBILITY DESIGN OF TAILINGS STORAGE FACILITY, DRC, 2005**PROJECT MANAGER**

Undertook the bankable feasibility design of the 315 Ha Tailings Storage Facility for the re-treatment of 4,2 million tons per annum of copper tailings, at Kolwezi, Democratic Republic of Congo.

MINERACAO ANGLOGOLD LTDA., BANKABLE FEASIBILITY STUDY, BRAZIL (2004)**PROJECT MANAGER**

Undertook the bankable feasibility design of a valley site gold tailings storage facility, return water dams, storm water containment dam and stream diversions. Project included feasibility design and development of a life of mine financial model for the proposed facilities as well as a detailed geotechnical investigation of the founding conditions and tailings material.

PETRA DIAMONDS, LACE MINE DUE DILIGENCE, SOUTH AFRICA (2004)

Provided specialist input to a team evaluating the proposed purchase of Lace Diamond Mine. The project involved the review of surface water management measures, environmental as well as technical issues associated with the fines and coarse discard dumps.

LONMIN PLATINUM, LONG TERM PLANNING FOR KAREE MINE'S NEW TAILINGS DAM COMPLEX, SOUTH AFRICA (2004)**PROJECT MANAGER**

Responsible for the long term planning of the Karee Mine tailings dam complex. This involved a detailed site selection process and the costing of conceptual designs for a 50 year tailings dam complex.

BARPLATS, CROCODILE RIVER MINE, DUE DILIGENCE INVESTIGATION, SOUTH AFRICA (2003)

Provided specialist input to a team evaluating the proposed purchase of the Crocodile River platinum mine. Responsible for review of environmental, tailings storage and surface water management aspects of the mining operation.

SALPLATS PLATINUM MINE, ENVIRONMENTAL MANAGEMENT PROGRAMME EMPR, SOUTH AFRICA (2003)**PROJECT MANAGER**

Project managed the EMPR process for the new Salplats Platinum Mine in Rustenburg. Coordinated the specialist studies, public participation and environmental impact assessment for the new mine and compiled the Environmental Management Programme Report (EMPR).

QUARRYLAND LTD, FATAL FLAW ANALYSIS, CYPRUS (2003)**PROJECT MANAGER**

Undertook a fatal flaw analysis for a proposed limestone quarry in Cyprus. This involved liaising with the local authorities and producing conceptual layouts for the quarry infrastructure and proposed haulage routes.

LONMIN PLATINUM, DESIGN AND CONSTRUCTION OF KAREE TAILINGS DAM 3, SOUTH AFRICA (2001 - 2002)**PROJECT MANAGER**

Undertook the project management of the design and construction of KareeMine's 190 000 ton/month UG2/Merensky platinum tailings dam (Tailings Dam No 3). The project involved conceptual and detailed design, tender letting and adjudication and construction management.

BARRRICK GOLD, BULYANHULU MINE, PASTE DISPOSAL FACILITY REMEDIAL MEASURES, TANZANIA (2002)**LEAD PROJECT ENGINEER**

Designed the remedial measures to the paste disposal facility which included the design of a new decant and catwalk system. The project also required the redesign of the spillway systems for the return and storm water dams servicing the paste disposal facility.

AQUARIUS PLATINUM, EVEREST SOUTH PLATINUM MINE OVERALL MINE WATER BALANCE, SOUTH AFRICA (2002)**PROJECT MANAGER**

Responsible for the production of an overall mine water balance for a proposed platinum mine. A probabilistic water balance model was developed due to the poor meteorological data available for the area.

GOLDFIELDS GHANA, CLOSURE OF OLD HEAP LEACH FACILITY, GHANA (2002)

Project manager and lead engineer for the closure and rehabilitation measures for an old heap leach facility in Tarkwa, Ghana.

RAND LEASES PROPERTIES, FLOW SLIDE ASSESSMENT, SOUTH AFRICA (2002)**PROJECT MANAGER**

Undertook a probabilistic flow slide assessment of Durbar Rooderpoort Deep's tailings dam in Western Areas to determine the impact of a potential flowslide to an adjacent high density housing development.

LONMIN PLATINUM, CONSTRUCTION MANAGEMENT KAREE TAILINGS DAM 2, SOUTH AFRICA (2000 - 2001)**RESIDENT ENGINEER**

Appointed resident engineer for the construction of Karee Mine's 120 000 ton/month UG2 platinum tailings dam (Tailings Dam No 2). The construction project also included a new 500 000 cubic metre return water, a river diversion and a river crossing.

LONMIN PLATINUM, DETAILED DESIGN OF KAREE TAILINGS DAM 2, SOUTH AFRICA (2000)**LEAD DESIGN ENGINEER**

Design engineer for the conceptual and detailed design of Karee Mine's UG2 tailings dam facility (Tailings Dam 2). The design of the facility also called for a return water dam and a river diversion. Also responsible for the preparation of the construction tender documents and adjudication of the tenders as well as liaising with authorities to obtain the necessary permits.

AQUARIUS PLATINUM, MARIKANA PLATINUM MINE FEASIBILITY DESIGN, SOUTH AFRICA (2000)**DESIGN ENGINEER**

Responsible for the feasibility design of a new platinum tailings dam and return water dam, the production of an overall mine water balance and input into the hydrological component of the EMP.

LONMIN PLATINUM, FLOW SLIDE RISK ASSESSMENT, SOUTH AFRICA, (1999)**DESIGN ENGINEER**

Carried out a flow slide risk assessment for the Karee Mine tailings dam complex in Rustenburg to determine the potential risks to a proposed new shaft situated downstream of the tailings dam complex.

GOLDFIELDS GHANA, HEAP LEACH ORE GEOTECHNICAL CHARACTERISATION, GHANA (1999)**DESIGN ENGINEER**

The assessment of the seepage characteristics and slope stability of heap leach pads at the Goldfields Tarkwa Gold Mine in Ghana.

MTN HOLDINGS, ISO 14000 CERTIFICATION, SOUTH AFRICA (1998)

Facilitation of the implementation of Environmental Management Systems for ISO14000 Certification at MTN (Mobile Telecommunications Network).