

MARIANNE JOAN HARVEY

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CAREER OBJECTIVE

To deliver positive outcomes to exploration and mining teams over a range of commodities, in order to become a leader in the field of project evaluation and development.

PROFESSIONAL PROFILE

- Bachelor of Science (Geology), Member of the AusIMM & AIG
- 20 years experience in regional exploration, open-cut and underground mining, in both minerals and coal
- Supervision of technical professionals, contractors and mentoring of graduates and new-starters
- Highly experienced in data management, geological and resource modelling in exploration, feasibility and operational environments
- Exceptional computer skills: experienced in the use of Ventyx (Mincom) Minescape and Minesight/Medsystem mine planning and resource estimation software packages
- Additional software exposure includes Minex, GeoCOAL, acQuire, MapInfo and Microstation, along with frequent use of the Microsoft Office suite of tools
- Collation and reporting of Resources of both base metal and coal deposits to professional association standards
- An effective communicator, strives to attain technical excellence and to deliver quality outcomes.

EMPLOYMENT HISTORY

MINING & EXPLORATION GEOLOGICAL MODELING SERVICES (M.E.G.M.S.)

Since February 2007

Director & Principal Consultant

Self-employed as a geological consultant providing specialist technical advice to operating coal mines and exploration projects in the Hunter Valley, NSW. JORC Competent Person status has been held for a number of projects, including:

- Coal resource reporting for Liddell Open Cut (Xstrata) 2008-2010
- Coal Specialist for a resource audit by Quantitative Group at Hunter Valley Operations (RTCA) 2011
- Underground coal resource estimation for EL7435 "Goonbri" for Bloomfield Group, 2014.

As the Sole Director/Secretary of M.E.G.M.S.' parent company, I have also been responsible for all administrative tasks associated with the running of the business. These activities have included book-keeping (MYOB), management of staff, contracts and budgets. I have also marketed and sold licences of M.E.G.M.S.' own software program, *MEGS_Log*.

MINING & EXPLORATION GEOLOGY SERVICES (M.E.G.S.), Toronto, NSW.

June 2004 – Feb 2007

Senior Geologist

Responsibilities:

- Database establishment and maintenance, geological and resource modeling of coal deposits for operating mines and exploration projects in the Hunter Valley, NSW, using Minescape software.
- Provision of consultative advice in coal geology to clients, many of whom did not have site-based geological services.
- Drilling program organisation, supervision and borehole logging and sampling.
- Data collation, analysis and reporting, according to client or statutory requirements.

Key achievements:

- Management of underground long hole drilling programs and completion of geological mapping to provide interpretations of the geology of the Hunter Valley Dyke and the Block Fault Zone for the Newpac No. 1 Colliery.
- Complete model rebuild for Liddell Coal Operations comprising the recorrelation of all seam splits for the purpose of combining short and long term planning and resource models.

RIO TINTO COAL AUSTRALIA, Blair Athol Coal Mine, Qld.
Mine Geologist
Acting Senior Technical Services Engineer (as required)

May 2003 – June 2004

Responsibilities:

- Input to the strip design process regarding seam characteristics, structure and coal quality information.
- Identification and monitoring of geotechnical hazards and the provision of advice for improving high wall and spoil dump stability.
- Exploration drilling program planning, supervision, borehole logging and management of drilling and geophysical contractors.
- Maintenance of coal seam and quality models (Minescape, Stratmodel) and administration of the drillhole database (GDB).
- Compliance with the site safety systems at all times, and use of the First Priority program for safety audit, hazard and incident reporting.
- Management of the Technical Services group periodically, supervising the areas of surveying, production statistics, short term mine planning and geology.

Key achievements:

- Management of a project to recorrelate the No. 4 Seam and redefine the coal resource.
- Implementation of the SIROVISION rock mapping system (digital photogrammetry) as a safe means of collecting geotechnical data for improved high wall design.
- Application of conditional simulation for risk mapping of high sulphur zones.

MOUNT ISA MINES LIMITED, Mount Isa, Qld.
Supervising Geologist

October 2002- April 2003

Isa Open Cut Feasibility Study – this study aimed to investigate the viability of open cut mining for continued production of copper, lead and zinc at Mount Isa for a mine life in excess of 20 years.

Responsibilities:

- Supervision and training of a team of 9 geological personnel (staff and contract) undertaking diamond drillhole logging and progressive geological and structural interpretation of copper and lead-zinc orebodies.
- Validation and maintenance of geological and geotechnical data from drillhole logging (using acQuire software) to ensure quality control standards were achieved.
- Key performance indicator and progress reporting in accordance with project schedules and budget requirements.

Key achievement:

- Initiated and designed a total rebuild of the geotechnical drillhole database to better facilitate storage and retrieval of geotechnical data for pit design and structural interpretation.

GNOMIC EXPLORATION SERVICES, Townsville, Qld.
Contract Geologist – contracted to Mount Isa Mines Ltd., Mount Isa, Qld.

Feb 2001- Sept 2002

Copper Business Study (2002) – the aim of this study was to maximise the value of the Mount Isa Copper Business by establishing greater than 10 years reserves and to investigate future production opportunities for the underground operations.

Responsibilities:

- Re-interpretation and structural modeling of north-south oriented faulting in the 3500 orebody.
- Construction of historic stope models for the Data Security System (DSS) to maintain records of all mined voids.
- Engineering design work for cut-off grade analysis.

Key achievement:

- Developed a new methodology for the definition and classification of Mineral Resources for the 2001/2002 Identified Mineral Resources and Ore Reserves statements for the Enterprise and Isa Copper Mines.

Lead/Zinc Study (2001) – this study was undertaken to strengthen the Mount Isa Lead-Zinc Business by improving performance in mining and processing resulting in an increase in mineable reserves.

Responsibilities:

- 3 dimensional structural and stratigraphic modeling of the George Fisher deposit and Isa Lead Mine geology.
- Resource delineation and collation of data for the 2000/2001 Identified Mineral Resources and Ore Reserves statements for the Hilton and George Fisher Mines.
- Geostatistical analysis of the Isa Lead Mine orebodies.

Key achievement:

- A complete re-interpretation of the Isa Lead Mine *Rio Grande* orebodies and identified new areas of significant exploration potential.

MOUNT ISA MINES LIMITED, Mount Isa, Qld.

Sept 1996 - Dec 2000

Project Geologist - George Fisher Mine

Mine Geologist – Deep Copper (Enterprise), Hilton & George Fisher mines

Responsible for safe, cost-effective and timely collection and interpretation of geological information required to contribute to the development of mine planning strategies. Second in Charge to the Senior Geologist for all operational purposes and led the team of geological professionals as Acting Senior Geologist for a period of 3 months. Performance was measured against the achievement of:

- Input to annual Ore Reserves/Resources and budget (including capital expenditure) calculations
- Timeliness and quality of geological data acquisition, verification, interpretation and generation of block models (using Minesight/Medsystem and Microstation software)
- Promotion of a pro-active grade control culture in all facets of ore-handling
- Communication of geological and geotechnical issues to development contractors, planning, metallurgical, operations and management personnel.

Key achievement:

- Instrumental in the development and implementation of the Minesight software package for use across the Mount Isa Lease. This included liaising with software engineering consultants regarding requirements of the package, from the input of mapping data through to geostatistical estimation.

DELTA GOLD EXPLORATION PTY. LIMITED, Mount Isa, Qld.

July 1994 - August 1996

Exploration Geologist

Collection, analysis and interpretation of regional exploration data to investigate potential new mineral deposits in the Mount Isa Inlier. Field work included mapping, geochemical sampling, drill core and chip logging and geophysical surveying. Target generation and data manipulation was undertaken using MapInfo and Strider software. Microsoft Office products were used for annual tenement and internal technical reporting.

Key achievement:

- Undertook exploration work on a greenfields project and justified a budget of \$250,000 for drill-testing the area.

COMALCO MINERAL PRODUCTS, Weipa, Qld.

January - July 1992

Student Geologist

- Drilling program supervision and borehole logging.
- Validation and upload of logging and grade control sampling data.
- Generation of grade distribution plans using Datamine software.
- Provided assistance in environmental field contamination assessments.
- Researched and produced a technical report: *A study of Weipa and Andoom bauxite pisolith assemblages* for grade control purposes and better prediction of milling characteristics.

TRAINING

Minesight 3D, Geological Modeling and MSDA, Minesight Applications (December 2007)
Quantification of geological uncertainty and risk assessment for classification of coal resources – with Roussos Dimitrakopoulos (March 2004)
Mine Slopes & Dumps – Rio Tinto Technical Services (January 2004)
Advanced Safety Auditing – (December 2003)
Safety Management for Leaders – (September 2003)
Root Cause Analysis - Effective Problem Solving & Beyond – (October 2003)
Leadership - Working Together – (July 2003)
Minescape, Stratmodel, GDB – Mincom (July 2003)
S1-S2-S3 Legislative Compliance Training - in accordance with statutory requirements of the Qld Metalliferous Mining Act (January 2003)
Rock Mechanics for Mine Design - internal MIM course (February 1999)
Introduction to Minesight 2.0 - (November 1998)
Geostatistics for Resource Estimation & Grade Control, Key Centre for Mines (July 1998)
Mine Geology & Mining Methods, Key Centre for Mines (May 1997)

TERTIARY EDUCATION

James Cook University of North Queensland

1993 completed a Bachelor of Science (Geology), obtaining a Distinction average.
(First and second years were undertaken at the University of Technology, Sydney.)

REFEREES – available on request