



# David J. McChesney

## *Current Position*

Principal Engineer

## *Profession*

Mining Engineering

## *Years' Experience*

35+

## *Education*

BS – Mining  
Engineering,  
Michigan Technological  
University,  
Houghton, MI

## *Professional Registrations*

PE – AL, AZ, CO, NC, NV, UT,  
VA, WV

## *Affiliations*

Society for Mining,  
Metallurgy, and Exploration,  
Inc.  
(SME) – Registered Member

International Society of  
Explosives Engineers  
(ISEE)

Tau Beta Pi  
engineering honor society;  
membership since  
1981

## *Citizenship*

Dual – US and Canada

## **Summary of Experience**

Mr. McChesney performs geologic modelling, reserve calculations, mine and reclamation planning, production timing, and cost computations for active and proposed mine properties both domestically and abroad. His work experience includes coal, precious metals, and oil shale projects.

He has:

- > Performed computations for coal reserve and resource reports generated for the U.S. Securities and Exchange Commission, Canadian National Instrument 43-101 Standards for Disclosure of Mineral Projects (NI 43-101) and the Joint Ore Reserves Committee (JORC) code
- > Performed engineering design and cost computations for feasibility studies of surface coal and metal operations
- > Provided daily engineering support for coal and metal operations
- > Successfully applied mining software to predict monthly production volumes, tonnages, and qualities at active mining operations
- > Utilized similar software to sequence mining activity and schedule life-of-mine production for surface coal and precious metal operations
- > Designed reclamation surfaces incorporating geomorphic land shaping based on the GeoFluv approach and Natural Regrade software
- > Prepared budgets and devised strategies to improve productivity and comply with state and federal regulations for mining operations
- > Created and modified blasting plans to incorporate cast blasting and develop procedures to document compliance with regulatory vibration maximum values
- > Performed end-of-mine reclamation and closure cost estimates to comply with the general requirements of Asset Retirement and Environmental Obligations as stipulated in Accounting Standard Codification Topic 410 (ASC 410)
- > Performed economic justifications and look-backs for new equipment purchases
- > Extensive experience using AutoCAD, Carlson Mining, Carlson Natural Regrade, Microsoft Office products, CAT Fleet Production and Cost Analysis (FPC), and programming in Visual Basic Applications
- > Provided technical training in software application

## **Significant Projects**

- > Magallenas Region, Chile: Provided technical and operational assistance during the initial first year of a surface coal mine
- > Western Australia: Designed a proposed open-cut and highwall mine and participated in preparing the surface mining chapter of the associated Definitive Feasibility Study
- > Queensland Australia: Provided technical assistance in evaluating an active mining operation for potential purchase



## Professional History

2017 - Present

### Principal Engineer

*Marshall Miller & Associates, Inc.*

Dec 2004 – 2017

### Senior Mining Engineer

*Cardno, Inc. (formerly Cardno MM&A, Marshall Miller & Associates, Inc.)*

Responsibilities include geologic and mine modeling, mine planning, mine costing and production timing to support reserve evaluations and feasibility studies. During this time, these tasks were performed:

- > Construct geologic model that requires detailed knowledge of the database and the capabilities of the modeling program. In some instances, additional code is written to resolve conflicts in the model.
- > Compute equipment cycle times and productivities based on the mine geometry, anticipated work schedule, and desired production level for mine planning. Additionally, it requires performing an iterative exercise to determine the appropriate sequence of extraction so that scheduled production levels can be achieved and maintained.
- > Evaluate and recommend improvements in the existing mine plan at client's operating mines.
- > Accompany clients on visits to potential acquisitions of mining properties to provide mining engineering expertise.
- > Design reclamation plans incorporating fluvial geomorphic land shaping methods to create stable reclamation surfaces.
- > Recommend an innovative pit sloping and parallel digging combination to handle and control ground water problems at a client's mine.

Dec 1998 – Sept  
2004

### Operations Engineer

*AEI Resources / Horizon Coal Company*

Responsibilities were expanded to include operations engineering support for five surface operations after the company was acquired by AEI Resources. Dave successfully created geologic/mine models for the surface operations that provided the means to accurately predict production and quality results for each mine. He expanded usage of seismographs to record production blasting results. This provided sufficient data to show blast vibrations were well within the legal limits and enabled Dave to successfully convince the regulatory agency to allow large cast blast shots that ultimately helped mine higher strip ratio coals. He proposed excavation plans that maintained sufficient working areas so that equipment was effectively utilized and production goals were achieved.

Nov 1992 – Nov  
1998

### Senior Mining Engineer

*Zeigler Coal Company – Pike County Coal Division*

Responsibilities were similar to the previous mining period except under new company ownership. Dave improved on methods of mine modeling and production-tracking to compute the volume of undesirable rehandle material that the mine was experiencing and which was impacting production goals. He modified the mine plan to reduce the mine rehandle figures to acceptable limits. Dave performed the economic justification for the



purchase of a large front-end loader to increase production. His continued improvement in mine modeling enabled the company to better predict the quality of future production. He developed blast plans that were used to successfully petition the regulatory agencies to increase the blasting explosive usage per blast. Dave improved the pre-blast survey record keeping and response to blasting complaints and successfully adopted the usage of seismographs for recording blast vibrations.

Jun 1989 – Oct 1992

### **Operations Engineer**

*Shell Mining Company – Pike County Coal Division*

Responsibilities included operations engineering for surface mines that were not meeting the company's budgetary production and operating cost goals. This included constructing the first geologic and mine model for the mine properties and recognizing that increased stripping ratio that was partially contributing to increased mine cost. Dave was instrumental in improving the production record keeping, showing the economic limits of various mining equipment, and adopting low-cost cast blast and bulldozer production into the mine plan. He performed the economic justification for the purchase of two large rock trucks and the transition to a 24-hour / 7-day a week work schedule.

Jan 1986 – May 1989

### **Mining Engineer**

*Shell Mining Company – BMUSA*

Responsibilities included computer modeling of precious metal deposits using core drilling rock type and analytical results. Dave evaluated alternative open pit geometries to determine through incremental analysis what configuration provided the greatest metal recovery for the lowest operating cost and greatest Net Present Value by converting the block model into a dollar matrix. The effort culminated with his participation in the company's first surface gold mine in Mojave, California. He refined the mine's model to reflect the selective mining unit size, pit slopes, and cut off grades determined by the mining and processing cost. Dave updated the model daily by merging the results of production drilling with lab analysis and appending the additional data to existing drill data used in the model. This effort improved the predictability of deeper unmined reserves. He periodically modified the open pit geometry and associated ramp access to reflect the changes in the geologic model. Dave derived a new contract price agreement with the mining contractor to encourage additional mine extraction.

Jul 1981 – Dec 1985

### **Mining Engineer**

*Shell Mining Company – Mineral Ventures Group*

Responsibilities included engineering and economic evaluations of oil shale projects involving fee property and proposed Federal leases in Colorado. This included preparing a report that provided supporting computations justifying the extractable reserves in a critical land exchange effort with Bureau of Land Management that allowed Shell to consolidate its land and mineral position in the Piceance Basin. It also included field work in support of Shell's proprietary technology of in-situ extraction of shale oil.