



John E. Feddock

Current Position

Vice President
Senior Principal

Profession

Mining Engineer

Years' Experience

40+

Education

MS - Mining Engineering
(Mineral Economics, Rock
Mechanics), Columbia
University, Henry Krumb
School of Mines, New York,
New York

Professional Registrations

PE - IL, KY, OH, PE,
UT, VA, WV

Land Surveyor - WV

SME - Founding Registered
Member, Competent
Person for Mineral
Reporting

MSHA Certified Trainer

MSHA 8 Hour Annual
Refresher

Affiliations

SME
KY P E's in Mining
NSPE

Summary of Experience

Mr. Feddock serves as the principal investigator in mineral economic and mining geotechnical projects to meet standards as developed by the U.S. Securities and Exchange Commission (SEC), the Canadian National Instrument (NI) 43-101, and the Australian Joint Ore Reserves Committee (JORC) code. Previously, he served as Vice President/Manager of Engineering for two major coal companies. In addition, he serves as an expert witness.

Significant Projects

- > Served as consultant for projects at surface and underground mines for both the coal and stone industries (underground mine projects included mine planning and entry layout, longwall applications, subsidence prediction and control, productivity analysis and prediction, continuous miner and longwall equipment applications, roof support analysis, and coal pillar sizing).
- > Served as principal design engineer of the Minova USA, Inc. (Minova), 120 psi and 50 psi ventilation seals.
- > Provided designs for surface mine planning, mountaintop removal, blasting damage control, groundwater and hydrologic impacts, environmental site assessments, productivity analysis and prediction, and highwall stability analysis.
- > Coordinated mineral economics projects that included discounted cash flow and rate of return analysis; equipment and facility investment requirements; the valuation of property, plant, equipment, and reserves; mine operating cost forecasting and analysis; mine feasibility studies and company valuations.
- > Provided expert witness testimony, attorney technical support, insurance claim analysis for cases that involved: longwall mining, blasting, subsidence, groundwater impacts, lost coal claims, personal injury, production capability, sales contracting, and other mining engineering issues in both State and Federal courts.

Specific Projects

- > **Overseas Assignments:** Australia, Chile, China, Colombia, United Kingdom
- > **Valuation of Reserves, Mines and/or Facilities:** Colorado, Indiana, Illinois, Kentucky, Utah, Virginia, and West Virginia in the U.S.A., and Chile and China
- > **Design of Plug-Type Mine Seals** in compliance with 30CFR§75.335 (Federal regulation for mine seals)
- > **Evaluation of Business Interruption Claim** at open pit copper mines
- > **Regional Search for Coal Seams** containing specific trace elements
- > **Longwall Equipment Entrapment**, damage, assessment and performance
- > **Reclamation Liability (Asset Retirement Obligation) Assessment**
- > **Valuation of Asset and Goodwill Impairment** – mining operations



Professional History

2017 – Present

Vice President / Senior Principal

Marshall Miller & Associates, Inc.

2011 – 2016

Senior Principal / Practice Leader – Engineering,

Cardno, Inc.

2001 – 2011

Senior Vice President

Cardno MM&A

1998 - 2001

Senior Vice President Vice President - Mining and Minerals

1996 – 1998

Senior Mining Engineer

Marshall Miller & Associates, Inc.

Consultant specializing in mineral due-diligence, management of mineral companies including bankruptcy, financial analysis, valuation, mine design, expert witness testimony, attorney technical support, equipment application and insurance claim analysis. Responsible for direction, coordination, scheduling, and review of engineering projects investigated by staff engineers and consultants in the mineral and construction industries. Principal Engineer responsible for due-diligence reviews of both underground and surface mines and mining related facilities, business valuations, financial analysis of mining operations, and Balance Sheet valuation of reserves, mining property, plants and equipment. Primary Consultant providing expert witness testimony, attorney technical support, and insurance claim analysis, specific cases involve: longwall mining, blasting, subsidence, groundwater impacts, lost coal claims, personal injury, production capability, coal contracting, and other mining engineering issues. Experience spans coal mining, quarry operations, tunnel and shaft construction, property management, geo-technical and rock mechanics studies and environmental assessments.

1989 – 1996

Vice President – Mining

L.A. Gates Company

Provided mining engineering and technical support to various mining and civil clients. Supervised and managed projects in mine planning, longwall applications, subsidence control, blasting damage, operations analysis, and equipment operation. Involved in over 80 cases where background, experience, and knowledge had been used to evaluate mining impacts on property, equipment, and safety. Prepared background reports, assisted in depositions, been deposed, and testified as an expert. Prepared affidavits and declarations on behalf of clients and provided expert technical support.

1988-1989

President

Feddock Engineering Company

Provided mining engineering and expert technical support to mining events on reserve acquisition and operations analysis. The firm was dedicated to implementing Quality in mining engineering, production, and management.



1986-1989

Vice President - Engineering, Geology and Properties

Island Creek Corporation

Supervised property and coal reserve evaluations, disposals, and acquisitions. Settled several trespass issues including two that were in arbitration. Approved contract operators selected for deep and surface mining, and participated as primary corporate officer in three major divestitures of coal reserves and plant facilities. Supervised negotiations with major coal property holding companies in Virginia, West Virginia, and Kentucky.

Directed the economic justification, planning, contracting, and completion of over \$50 million per year of construction and equipment expenditures. Construction projects included several shafts, buildings, silos, material handling, and preparation plant facilities.

Supervised the development of a longwall subsidence monitoring program including vibration monitoring, settlement prediction and damage assessment and reparation administration. Directed a longwall performance evaluation of six company mines and coordinated a long term comprehensive program of longwall system replacement and equipment rebuild.

Coordinated a comprehensive coal quality forecasting program incorporating statistical process control of mine production with company laboratory operation.

1982-1986

Chief Engineer

Rochester & Pittsburgh Coal Company

Directed all engineering services, including geology and private property damage assessment, at all divisions and corporate headquarters for this major coal company which produced in excess of 9 million TPY. Managed the engineering department with 110 persons and an annual budget in excess of \$5 million.

Developed surface mine engineering and environmental departments within the company to give timely response to re-permitting and environmental compliance under Pennsylvania's Primacy of the Surface Mine Control and Reclamation Act of 1977 (SMCRA). As a member of the Environmental Committee of the Keystone Coal Association and the AMC Subsidence Workgroup, participated in public forums and testimony regarding the impact of various Federal and State legislation upon the mining industry.

1979 – 1982

Fuel Supply Manager

Keystone Conemaugh Project

Administered coal supply agreements with a value of U.S. \$240 million between utility owners and captive coal suppliers. As a member of a four-person administrative team, acted as liaison between a consortium of ten utilities and the operation of two 1800 MW coal-fired generating stations which burn an aggregate eight million TPY. Reviewed and approved annual capital and expense budgets and mining plans of captive suppliers' underground mines. Coordinated consultant inspections, evaluations, and reports.

Instituted and coordinated the development of a linear, stochastic program computer model to select the most economical coal supplies for a generating station over a 35-year



period. The model incorporated alternative sources of supply (short, intermediate, and long term), coal price forecasts, market constraints, station operating parameters and material handling constraints. A detailed report on the coal supply strategy was accepted and, based on the technical and economic evaluations: several long-term agreements were renegotiated.

1976 – 1979

Senior Mining Engineer

GPU Service Corporation

Supervised utility-funded coal exploration programs and technical evaluations of coal mines, dedicated reserves, and coal supply and utilization problems for three wholly owned electric utilities, which burned 16 million TPY. Provided technical expertise and developed numerous interactive language computer programs to evaluate coal preparation schemes, coal mining problems, coal sampling and environmental regulations. A coal cleaning versus flue gas desulfurization (FGD) strategy was developed.

Chaired an inter-utility Task Force to select and develop coal supplies for an innovative technology cleaning plant as an alternative to scrubbing. Evaluated the reliability of supply and coal preparation characteristics of several coal producers to generate a purchasing philosophy for a multi-unit, jointly owned 1850 MW generating station complex which burned 5 million TPY.

1973 – 1976

Maintenance Superintendent and Project Engineer

Morton Salt Company

Supervised a 60-person Maintenance Department for a 1.15 million TPY rock salt mining and milling operation. Instituted preventive maintenance programs and a satellite maintenance area. As Project Engineer, responsible for design, acquisition, installation and economic justification of modifications and additions to the plant and mine facility.

1972-1973

Mine Engineer

Bethlehem Mines Corporation

Performed the duties of a Mine Engineer at the Revloc, No. 32 Mine and at the Division Office where responsibilities concentrated on the economic and financial analysis of mining projects. Prepared a simulation model of mine ventilation and removed a ventilation shaft from service.

1971 – 1972

Research Assistant

Krumb School of Mines, Columbia University

Participated in Rock Mechanics Studies at an iron ore mine in eastern Pennsylvania.



1969 – 1970

Tunnel Engineer

Poirier McLane Raymond DiMenna Joint Venture

Monitored daily progress and designed specialized equipment for the construction of a 28-foot diameter Intercepting Sewer tunnel in rock using drill and blast, in mixed face using ground freezing, and in submerged unconsolidated material utilizing a compressed air caisson.

Publication

- > Technical Report Contract No: 200-2012-52497 *“Assessment of Technology for Non-Destructive Testing of In-situ Underground Mine Seals,”* prepared for Centers for Disease Control and Prevention, September 2014, co-authored with Cary Harwood.
- > *“Mineral Resource and Reserve Reporting for Public Companies”*, Current Trends in Mining Finance Seminar, The Society for Mining Metallurgy and Exploration (SME) and the New York Section of SME, April 29-30, 2013, City University of New York Graduate Center, New York, NY.
- > *“International Reserve Evaluation Standards”*, Kentucky Professional Engineers in Mining Seminar, August 17, 2012, Marriott Griffin Gate Resort, Lexington KY, US.
- > *“Mineral Reserve and Resource Reporting for Public Companies”*, Natural Resources Conference, Kentucky Society for Certified Public Accountants, August 13, 2012, Embassy Suites Hotel, Lexington KY, US.
- > *“Coal Mine Acquisition: Understanding the Basics – Mine Planning and Construction, Mine Operations, Reserve Quality & Quantity, and Geology”*, MET COKE 2010 14th Annual World Summit, November 1-3, 2010, Omni William Penn Hotel, Pittsburgh PA, US, co-authored with Peter Lawson.
- > *“Mine Safety Progress”*, Bluefield Coal Symposium, A Comprehensive Analysis of Safety Progress including Regulations, Safety Practices, and Operator Reporting Greater Bluefield Chamber of Commerce, Bluefield WV, September 2010.
- > *“Design and Installation of Plug-Type Mine Seals”*, Wellmore Coal Company, Mine Safety Training Class, MSHA Refresher Training, Wellmore, Virginia, April 2009.
- > *“Coal Mine Sealing Strategies”*, Bluefield Coal Symposium, Coal Mine Safety: The Road to Zero Harm Greater Bluefield Chamber of Commerce, Bluefield West Virginia, August 2008, co-authored with Edmundo Laporte, P.E.
- > *“120 psi MINOVA Main Line TekSeal® - In a Stable Entry”*, Prepared for Minova USA, Inc., MSHA Approved Mine Seal Design, Pittsburgh, PA, Approval Number 12M-02.0 October 2008, and 120-75.336.1.07.15.1 October 2007.
- > *“Analysis and Application of Coal-Seam Seismic Waves for Detecting Abandoned Mines”*, Geophysics Vol.72 No.3, September/October 2007, Page M7-M15, co-authored with D.J. Yancey, M.G. Imhof, and C.F. Gresham.
- > *“Coal Mine Safety in China and Degasification of Longwall Panels using In-Seam Directional Drilling Technology”*, Proceedings of the 26th International Conference on Ground Control in Mining, Sponsored by West Virginia University, Morgantown West Virginia, August 2007, co-authored with Jinrong Ma, Ph.D., and Hu YuHong.
- > *“The Rapidly Changing Economics of the Coal Mining Industry”*, CAS/SME 2007 Annual Spring Meeting, April 14, 2007, Marriott Griffin Gate Resort, Lexington, Kentucky, co-authored with Peter Lawson.
- > *“New Mine Safety Regulations”*, North Carolina Coal Institute, Southern Pines, NC, October, 2006.



Publications (Continued)

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- > *"Retreat Mining Practices, Can Additional Training Improve Safety, An Update"*, Bluefield Coal Symposium on Mine Safety, Mining Legislation and Training, Bluefield, West Virginia, September 2006.
- > *"Retreat Mining Practices"*, Kentucky Professional Engineers in Mining Seminar, Lexington, Kentucky, co-authored with Jinrong Ma, Ph.D., August 2006.
- > *"Safety: A Review and Evaluation of Current Retreat Mining Practices in Kentucky,"* 25th International Conference on Ground Control in Mining, Morgantown, West Virginia, co-authored with Jinrong Ma, Ph.D., August 2006.
- > *"Retreat Mining Practices in Kentucky,"* Environmental and Public Protection Cabinet, Kentucky Department for Natural Resources, Frankfort, Kentucky, February, 2006.
- > *"The Unique Nature of Mineral Property Appraisal"*, American Society of Appraisers, Kentucky Chapter Meeting, Louisville, Kentucky, June, 2004.
- > *"Economic Benefits of Coal-based Synthetic Fuel – 1997-2007"*, Private presentation for Headwaters, Inc., Lexington, Kentucky, May, 2004.
- > *"Economic Benefits of Coal-based Synthetic Fuel • 1998-2007 Produced under Section 29 of the Internal Revenue Code, As promulgated through the Oil Windfall Profits Tax Act of 1980"*, co-authored with Justin S. Douthat, P.E., December 2003.
- > *"Valuation of Minerals in Condemnation Proceedings Hypothetical Application of Valuation Methods"*, Conference of Government Mining Attorneys (COGMA), Knoxville, Tennessee, September 2003.
- > *"Determination of Rock Strength Properties Using Geophysical and Ultrasonic Logging in Exploration Drill Holes"*, International Conference on Ground Control in Mining, Morgantown, West Virginia, August 2003.
- > *"Haul Roads"* – Chapter 10, SME Mining Reference Handbook, Lowrie, Raymond L., P.E., Editor, Society for Mining, Metallurgy, and Exploration, Inc., Littleton, Colorado, 2002.
- > *"Permitting of New Mining Operations, Problems & Possibilities"*, Electric Power Research Institute – Coal Markets Workshop, Hilton Washington Dulles Airport, Herndon, Virginia, June 2002.
- > *"Engineering Aspects of Synfuel Projects"*, co-authored with Justin S. Douthat, P.E. at the Central Appalachian Section of the Society of Mining Engineers of the American Institute of Mining, Metallurgy and Exploration (CAS/SME/AIME) Spring Meeting, Marriott Griffin Gate Resort, Lexington, Kentucky, April 2001.
- > *"Subsidence and Groundwater Impacts"*, Central Appalachian Section of the Society of Mining Engineers of the American Institute of Mining, Metallurgy and Exploration (CAS/SME/AIME) Spring Meeting, Martha Washington Inn, Abingdon, Virginia, June 2000.
- > *"Permitting and the Haden Decision"*, Energy and Mineral Law Foundation Workshop, Ft. Myers Beach, Florida, February 2000.
- > *"Subsidence and Ground Water"*, June 10, 1999, Abingdon, Virginia, presented at the Central Appalachian Section of the Society of Mining Engineers Conference, co-author Ronald Mullenex C.P.G.
- > *"Due Diligence: Reserve Assessment and Engineering Considerations"*, March 1, 1999, St. Pete Beach Florida, presented at the Financial Times Energy/Coal Outlook Conference, co-authors Marshall S. Miller and K. Scott Keim.
- > *"Engineering Aspects of Mountaintop Surface Mining"*, The 1998 Bluefield Coal Rally sponsored by the Greater Bluefield Chamber of Commerce, Panel Discussion of Mountaintop Mining, Fincastle Country Club, Bluefield, Virginia, October 1998.



Publications (Continued)

- > *"Mine Planning and Production Costs for MTR and Non-MTR Mining"*, Economic Committee of the Governor's Task Force on Mountaintop Removal and Related Mining Methods, Marshall University Graduate Center, Charleston, West Virginia, October 1998.
- > *"Practical Applications of Geology and Insurance in Recovering Longwalls,"* Longwall USA International Conference, D.L. Lawrence Convention Center, Pittsburgh, Pennsylvania, June 1998
- > *"Longwalls in Peril – The Roles of Geology and Insurance"*, CAS/SME-WVCMJ Joint Meeting, The Greenbrier, White Sulfur Springs, West Virginia, October 1997.
- > *"Coal Mining: Development, Operations and Management"*, Special Institute on Mining and Environmental Law for Trust Officers and Land Managers, Eastern Mineral Law Foundation, Charleston, West Virginia, September 1991.
- > *"Horizontal Ground Movements and Mining Damage"*, Mine Subsidence Prediction and Control Symposium, Association of Engineering Geologists, 33rd Annual Meeting, Pittsburgh, Pennsylvania, October 1990.
- > *"Engineering Quality into Surface Mine Planning"*, Surface Mining and Reclamation Conference, Charleston, West Virginia, April 1990.
- > *"PRODUCTIVITY . . . Who is Responsible for Improving It?"*, Pittsburgh Section SME Pittsburgh, Pennsylvania, March 1990.
- > *"Charting a Course Through a Maze of Opportunities"*, Career Planning Workshop, Society for Mining, Metallurgy and Exploration (SME), 119th Annual Meeting of AIME, Salt Lake City, Utah, February 1990.
- > *"Productivity Improvement through Quality Management"*, West Virginia Coal Mining Institute of America, White Sulfur Springs, West Virginia, November 1989.
- > *"PRODUCTIVITY . . . Who is Responsible for Improving It?"*, Central Appalachian Section of AIME and NICOA Joint Meeting, Lexington, Kentucky, April 1989.
- > *"Ethics and the State of the Industry"*, University of Kentucky Norwood Student Chapter of AIME, Lexington, Kentucky, 1987.
- > *"Coal and the Environment"*, Indiana University of Pennsylvania Business Day IX, Indiana, Pennsylvania, 1986.
- > *"Compliance with SMCRA in Pennsylvania"*, Society of Mining Engineers of AIME - Off the Record Meeting, Pittsburgh, Pennsylvania, 1984.
- > *"Economics of the Energy Industry"*, Armstrong Indiana County Economic Education Foundation, Indiana, Pennsylvania, 1983.
- > *"Ground Freezing as Used in the Excavation of a Mixed Face"*, co-authored with M.T. Wane, SME Fall Meeting, St. Louis, Missouri, 1970.