



J. Scott Nelson

Current Position

Senior Principal

Profession

Geology

Years' Experience

35+

Education

BS - Geology, Washington and Lee University, Lexington, VA (1975)

Post-Graduate Study, Education and Philosophy, James Madison University (1976)

Professional Registrations

CPG - AIPG

PG - KY, VA

Affiliations

American Institute of Professional Geologists

Society for Mining, Metallurgy and Exploration, SME-AIME

Summary of Experience

Mr. Nelson has broad experience throughout the principal North American coal basins, with special expertise in Central Appalachian coals. He has worked internationally in Asia and Africa. His research and publications have focused on the co-application of advanced geotechnical engineering and depositional modeling to predict and map underground geologic hazards.

He is a Competent Person in coal resource determination under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Resources (JORC Code), the Canadian Securities (NI-43-101) code, and the U.S. Securities and Exchange Commission.

Significant Projects

- > **Eastern Kentucky:** Conducted long-term supervision of exploration, evaluation, and development of a 100,000-acre tract for a major land company. Work involved the completion of over 500 boreholes, aerial mapping, computer database development, regional coal correlation and mapping, and identification of most favorable reserves.
- > **People's Republic of China- Shanxi Province:** Served as principal geologist for exploration, prefeasibility study and JORC reserve evaluation for major new top-coal caving longwall mining operation.
- > **West Virginia:** Designed and implemented geotechnical exploration and evaluation of proposed shaft and slope mine portal developments.
- > **Eastern Kentucky and Southwestern Virginia:** Investigated geological and geotechnical factors controlling mining conditions and productivity for longwall, conventional, and continuous mine operations (low and high seam mines). Provided predictive mapping and geotechnical characterizations of critical roof and floor rock strata. Also, collaborated with rock mechanics engineer to provide stable pillar–entry configurations over a wide range of strata types and overburden depths.
- > **Eastern Kentucky, West Virginia, and Southwestern Virginia:** Prepared detailed property acquisition and feasibility studies that involved mapping and classification of coal reserves by economic viability; run–of–mine and product blend coal quality prediction for both steam and metallurgical coals; longwall feasibility; surface mine design; and economic evaluation at multiple strip ratio scenarios.
- > **Western Virginia:** Conducted geotechnical exploration and evaluation for major four–lane bridge project that involved delineation of critically unstable footing zones. Results used by client for adaptive modification of final structural design.
- > **East Central West Virginia:** Exploration and evaluation of properties involving potential for large scale dragline stripping operations.
- > **West Virginia:** Design and implementation of geotechnical exploration and evaluation of proposed shaft and slope mine portal developments.
- > **Northern and Central Appalachian Basins:** Performed fuel resource exploration and evaluation studies for power generators.



Significant Projects (Continued)

- > **Southwestern Virginia and Eastern Kentucky:** Inspected and analysed adverse geologic conditions in active underground coal mines that involved: structural faulting and fracturing; paleo channel scouring as well as diagenetic squeezing and over-thickening of coal seams; and adverse stratigraphy involving rider coals and other weak strata. Final reports were used by clients for mine planning, economic evaluations, and/or interface with lessors and contract mine operators.
- > **Major USA Coal Basins:** Performed reserve audits and evaluations of major coal producers using standards of US Securities and Exchange Commission, JORC and NI 43-101 (Canadian Securities) for public filings and financial due diligence.

Professional Summary

2017 – Present

Senior Principal

Marshall Miller & Associates, Inc.

2015 – 2016

Principal, Practice Leader – Geology

Cardno, Inc.

1979 – 2014

Vice President, Branch Office Manager

Marshall Miller & Associates, Inc.

Responsible for the planning and supervision of geological evaluations throughout the Appalachian region. Duties include data acquisition through surface and subsurface exploration, underground mine inspection, and remote sensing techniques; mapping of geological factors related to coal and waste coal reserves, quality, and mineability; engineering geology studies for construction of slopes, shafts, portals, shallow tunnels, highways, and bridges; computerized data management and mapping; coal property development and management; professional presentations, exhibits, and reports; coordination of geological teams and support staff; providing expert witness testimony; investigation of insurance claims; preparation of reserve audits for property acquisitions, estate settlement, financial assurance, and required filings with the U.S. Securities and Exchange Commission.

Publications & Presentations

- > “Geological and Geotechnical Methods for Evaluation of Longwall Mining Conditions,” West Virginia Coal Mining Institute, May 1989, Morgantown, West Virginia, co-authors: K. Scott Keim and Claudio Faria Santos.
- > “Geological Modeling Techniques for Evaluation of Productivity-Related Longwall Mining Roof Conditions: A Case Study,” Longwall U.S.A. Conference, September 1988, Pittsburgh, Pennsylvania, co-authors: Marshall S. Miller, and Ronald H. Mullennex. Also published in *Geology in Coal Resource Utilization*, AAPG-EMD, Copyright 1991 by Tech Books, Fairfax, Virginia, pp. 263-285.
- > “Modern Geotechnical Exploration and Mine Design,” Twelfth International Conference on Ground Control in Mining, August 1993, Morgantown, West Virginia; Co-authors; Patrick S. Artrip and David A. Newman



***Continuing
Education***

- > Planning & Design of Longwall Mining Systems, Pennsylvania State University
- > Surface Subsidence Caused by Underground Mining, University of Kentucky
- > Technical Communication, Colorado School of Mines
- > Radiation Safety Specialist Program, Oklahoma State University
- > Certified Planning Commissioner Program, Virginia Polytechnic & State University