James Scott Boswell

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Education

M.S. Geological Sciences
09/01/02 – 09/01/05
Indiana University, Department of Geological Sciences, Bloomington, Indiana
Specialization: Wetland hydrology, three-dimensional numerical modeling
Details: 34 hours, GPA 3.83

B.S. Environmental Science
09/01/98 – 05/01/02
Indiana University, Department of Geological Sciences, Bloomington, Indiana
Minors: Geology and Mathematics
Details: 132 hours, GPA 3.47

Professional Certifications

Licensed Professional Geologist, Indiana
License No. IN2607
License Date 01/24/2019

Professional Experience

Director, Environmental, Regulatory, and Permitting
05/01/2019 – Present
Peabody Energy
Supervisor: Bryce West
Duties: Continued work on Federal and State regulatory affairs such as proposed rulemakings, guidance documents, and policies. Coordinate with agencies and provide technical expertise to industry groups. Manage environmental permitting for Peabody's Midwest operations including mining, discharge, groundwater, stormwater, air, and dredge and fill permitting.

Senior Manager, Environmental
05/01/2016 – April 30, 2019
Peabody Energy
Supervisor: Bryce West
Duties: Work on regulatory affairs at federal and state level. Review and comment on proposed regulations including, but not limited to, OSMRE Stream Protection Rule, EPA Selenium Criteria Guidance Documents, EPA Specific Conductivity Criteria, and FWS Mitigation Policies. Assess compliance status of Peabody operations in regard to proposed regulations. Developed sampling plan and conducted field work to determine appropriate hydrologic characterization of streams within our permit area at our New Mexico operation. Developed site-specific selenium sampling plans, with both water quality and fish tissue sampling, for mining operations to identify potential sources, characterize ambient conditions, and assess effectiveness of current controls. Worked on

requirements and compliance for environmental permits such as mining, water quality, air quality, and wetland mitigation permits.

Manager, Environmental
01/01/2015 – 04/30/2016
Peabody Energy
Supervisor: Randolph Lehn
Duties: Work on environmental permitting issues for the mining operations including mining, point source discharge, stormwater, wastewater, waste, and air permits. This included permit applications, permit modifications, final permit assessment and compliance plans, and permit appeals where necessary. Managed watershed-scale water quality sampling and analysis plans and coordination with State agencies for an operation that was developing site specific fish tissue standards for selenium. Included watershed analysis of geology, soil quality, land use, aquatic habitat and aquatic community indices, discharges, and resulting changes in water quality. Participated in reclamation planning, reviewed revegetation progress and bond release status, and assisted in post-mining soil and subsoil sampling, analysis and reporting. Supported mine staff with review, implementation, and continuous improvement of erosion control practices on reclaimed landscapes. Assisted in managing an operation through the NEPA process with multiple Federal agencies, consultants, and other stakeholders. The NEPA process was initiated as a result of two separate actions. The first action was a mining permit modification and required an in-depth Environmental Impact Statement (EIS) analyzing the potential impacts of the mining operation and power plant from 2020 through 2044. A permit renewal also triggered the NEPA process and required an Environmental Assessment (EA) covering the mining operation from 2015-2020. Led a variety of environmental compliance projects when operations required assistance, including establishing water quality sampling plans for special projects, review and approval of MSDS for various products including herbicides, equipment maintenance products, and one-time projects, disposing of noncompliant hazardous waste, and upgrading storage tank designs.

Manager, Environmental
01/01/2012 – 12/31/2014
Peabody Energy
Supervisor: Eric Fry
Duties: Worked with operations to address internal environmental audit findings and develop action plans to address deficiencies. Worked on environmental permitting issues and developed compliance plans for new and renewed permits. Worked on regulatory issues at national and state level in states with active mines. Reviewed and commented on regulations and federal actions that affect mines including water quality, air quality, surface and underground mining and reclamation, waste, and endangered species. This included documents such as USFS Resource Management Plans, endangered species Recovery Plans and critical habitat designations (e.g. Indiana Bat, Northern Long-Eared Bat, Copperbelly Water Snake), and a wide variety of proposed regulations. Evaluated operations' risk, developed cost assessments, and coordinated compliance plans resulting from new regulations and endangered species determinations. Worked with State and Federal mining associations to propose regulatory changes, primarily related to water quality standards and mining regulations.

Manager, Hydrology
09/01/2005 – 09/01/2010
Peabody Energy
Supervisor: Eric Fry

Duties: Conducted environmental audits of mines. Assisted with NPDES permit applications and ongoing compliance. Participated in TMDL development projects affecting active mines. Developed chemical translator studies for surface water discharges and analyzed results. Calculated various statistics for groundwater compliance in accordance with EPA methods. Implemented water quality database for all historical and active mining sites. Developed groundwater and surface water monitoring plans with focus on points of compliance.

Research Assistant
05/01/2000 – 06/01/2005
Center for Geospatial Data Analysis, Indiana Geological Survey
Supervisor: Dr. Greg Olyphant, Dr. Sally Letsinger
Duties: Installed and maintained instruments for ongoing field experiments, collected geospatial data using GPS and ArcGIS, and contributed to data analysis and development of final reports for these projects. Past projects include monitoring nitrate movement through the unsaturated zone overlying a shallow aquifer in Daviess County, Indiana. Collecting soil samples, building a three-dimensional geologic grid, and modeling groundwater flow through a wetland in northern Indiana. Surface water and unsaturated zone monitoring in the Griffy Lake Teaching and Research Preserve. Monitoring of acid-mine drainage at the Midwest mine reclamation site, southwest Indiana. Development of forecasting model for *E. coli* contamination of Lake Michigan beaches. Geologic and hydrologic interpretation for wellhead protection plans. Monitoring *E. coli* contamination and reduction through wetland treatment cells at Indiana Dunes State Park. Monitoring of *E. coli* movement through the unsaturated zone at selected sites in morainal deposits of Morgan County, Indiana. Groundwater modeling of a lake system.

Teaching Assistant
09/01/2003 – 12/15/2003
School for Public and Environmental Affairs, Indiana University
Course: Applied Math for Environmental Science
Supervisor: Henk Haitjema
Duties: Led discussion classes in applied math covering topics in calculus and differential equations

Research Assistant
01/01/2003 – 12/31/2004
Adam Davis PhD Research, Department of Geological Sciences, Indiana University
Supervisor: Adam Davis
Duties: Soil sampling and tree identification transects taken in early successional forested areas. Primarily field work driven setting up transects, collecting GPS data, and collecting samples.

Research Assistant
01/01/2002 – 06/01/2002
Geofluids Computational Laboratory, Department of Geological Sciences, Indiana University
Supervisor: Mark Person
Duties: Performed a geostatistical (multiple regression) analysis with pollen and climate data to obtain paleohydrologic conditions of the Snake River Plain, Idaho. This was then used to model the hydrology of the area for the past 100,000 years.

Research Assistant
01/01/2001 – 06/01/2002
Field Ecology Laboratory, Department of Biology, Indiana University
Supervisor: Keith Clay

Duties: Regularly collected data from field plots of grasses. Identified and analyzed grass species' results in lab. Another project involved the collection of field data on black cherry trees and seedling mortality and included some laboratory analysis.

Professional Affiliations

Colorado Mining Association, chairman water quality committee
Indiana Coal Council, chairman regulatory affairs committee
National Mining Association, member
New Mexico Mining Association, member
Arizona Mining Association, member
Wyoming Mining Association, member
Illinois Coal Association, member
Alabama Coal Association, member

Relevant Coursework

Hydrological, Geological, and Environmental Sciences:
- Advanced Hydrogeology
- Surface Water Hydrology
- Groundwater Flow Modeling
- Numerical Methods in Groundwater
- Lake and Watershed Management
- Geomorphology
- Terrigenous Clastic Depositional Environments
- Sedimentology / Stratigraphy
- Carbonates of Southern Indiana
- Field Methods of Hydrogeology (Southern Indiana and Arkansas Karst areas)
- Field Methods in Hydrology and Geophysics (Nantucket, UMass Field Station, MA)
- Field Methods in Environmental Science (Field Camp in Tobacco Root Mountains, Montana)
- Analytical Geochemistry

Supporting Coursework:
- Ecology and Field Biology
- Statistical Methods in Atmospheric Science
- Physical Meteorology and Climatology
- Computing for Environmental Science
- Applied Math for Environmental Science
- Calculus I – III
- Differential Equations
- Probability and Statistics
- Organic Chemistry
- Physics I – II
- Law and Public Policy

Technical Skills and Training

Field and technical skills: Hydrologic and meteorological instrumentation, surface water, groundwater, and unsaturated zone monitoring, geologic and soil mapping, map reading and interpretation, GPS, surveying, database management, technical data analysis, and aquifer testing.

Programming and analytical skills: ArcGIS, AutoCAD, Microsoft Office (Excel, Access, Word, Powerpoint), EQuIS, Fortran, and SPSS.

Laboratory skills: Chemical analysis of waters and soils.

Operator skills: Tractor, ATV, backhoe, trencher, forklift, bobcat, trailers, and boats.

Official training: MSHA surface miner (mine safety), RCRA (waste management), DOT (waste shipping). Led training classes in stormwater control, MSDS review, and spill control.

Other Background Information and Occupations

Landscaping and Tree Farm Maintenance
06/01/2004 – 08/31/2005
Natural Creations LLC, Nashville, TN
Supervisor: Matt Dawson
Duties: Tree, shrub, and lawn maintenance for customers. Installation of irrigation system at the tree farm location. Operated a trencher, bobcat, and tractor for maintenance at the tree farm and transplanting trees to customers.

Construction Worker
05/01/1994 – 08/31/1998
Wonderwood Construction
Supervisor: Scott Boswell
Duties: Various construction jobs from remodeling to construction of new homes. Operated a backhoe, trailers, and all types of construction / power tools.

Farmhand
01/01/1992 – 01/01/2012
Farm of Scott and Linda Boswell
Duties: Managed livestock (approximately 20 head of cattle) and performed farm maintenance work including fencing, bailing hay, bush-hogging, water line repair, and tree harvesting. Operated tractors, ATVs, trailers, augers, and chainsaws.

References

Eric Fry
Director of Regulatory Affairs, Peabody Energy (at time of employment)
Phone: (812) 480-2954
Email: ericfryllc@yahoo.com

Sally Letsinger
Research Hydrologist, Indiana Geological Survey
Phone: (812) 855-1356
Email: sletsing@indiana.edu

Greg Olyphant
Associate Professor, Department of Geological Sciences, Indiana University
Phone: (812) 855-1351
Email: olyphant@indiana.edu

John Cochran
Hydrologist, Peabody Energy
Phone: (928) 853-2320
Email: cochrans@aspenenviron.com

Publications

Boswell, J. S., and Olyphant, G. A.: Modeling the Hydrologic Response of Groundwater Dominated Wetlands to Transient Boundary Conditions: Implications for Wetland Restoration. Journal of Hydrology, Vol. 332, Pages 467-476, 2007.