

Study of the Control of Respirable Coal Mine Dust Exposure in Underground Mines

Committee

Thure E. Cerling

Chair

Thure E. Cerling (NAS), Chair, is a Distinguished Professor of Geology and Geophysics and Distinguished Professor of Biology at the University of Utah. His research focuses on near-surface processes and the geological record of ecological change, particularly using geochemical proxies to understand the physiology and paleodiets of mammals, using soils as indicators of climatological and ecological change over geological timescales, landscape evolution over the past several million years, and isotopes as used in forensic studies. Dr. Cerling currently serves on the National Academies Committee on Earth Resources and he previously has served on several National Academies committees, including the Board on Earth Sciences and Resources (BESR), the U.S. Geodynamics Committee, and the U.S. National Committee for the International Union for Quaternary Research. He was a member of the U.S. Nuclear Waste Technical Review Board from 2002 - 2011. Dr. Cerling is a member of the National Academy of Sciences. He is a fellow of the American Association for the Advancement of Science, the American Geophysical Union, the Geological Society of America, and the International Association of Geochemistry. Dr. Cerling received a Ph.D. in geology from the University of California at Berkeley.

Dirk Dahmann

Member

Dirk Dahmann has been technical director and head of the Department of Research and Development on dust and aerosols at the Institut für Gefahrstoff-Forschung (IGF) (Institute for Hazardous Substances), formerly Silikose-Forschungsinstitut until his retirement in October 2017. Dr. Dahmann's research interests include: aerosols in working places, nanoparticles/ultrafine particles, exposure measurements, and sampling of dust and aerosols. He has written numerous publications about dust sampling and was actively involved in the German NanoCare project, which focused on the systematic investigation of nano-scaled materials, and several follow-up projects of German and/or European sponsorship. He is also active in research on silica, systematic exposure assessment on a scientific base, and exposure by diesel particles. Additionally, he has participated in several large international and national research programs within the scope of the EU coal and steel program from the late 1980s, as well as various national and international standardization committees. Dr. Dahmann has served on the advisory board of the Research Association for Diesel Emission Control Technologies (FAD) since 2003. He is head of the German standardization committee on dust measurement in workplace air and as such German speaker in the European Standardization committee TC 137 WG 3 (Workplace exposure). He has a Ph.D. in silicon-phosphorus-chemistry from the Ruhr-Universität Bochum.

R. L. Grayson

Member

R. Larry Grayson was the George H., Jr., and Anne B. Deike Chair in Mining Engineering and Professor of Energy & Mineral Engineering at The Pennsylvania State University from July 2007 through June 2013. At Penn State, he oversaw the Mining Engineering program and the graduate program. For eight years previously, he was the Chair, Department of Mining & Nuclear Engineering at the University of Missouri-Rolla (UMR). During that time, he was the Director of the NIOSH-funded Western Mining Safety & Health Training and Translation Center for five years. Following the mine tragedies in 2006, Dr. Grayson chaired the Mine Safety Technology & Training Commission, which was established by the National Mining Association to do an independent study on current and future approaches to improve mine safety in the United States. Prior to going to UMR, he served in government as the first permanent Associate Director of the Office for Mine Safety & Health Research, National Institute for Occupational Safety & Health (NIOSH), Centers for Disease Control and Prevention (CDC), and managed the merger of former U.S. Bureau of Mines' mine health and safety research functions into NIOSH. Dr. Grayson also has experience in the Pennsylvania coal mining industry, having worked as a United Mine Workers of America laborer and in various engineering and management positions, including as chief mining engineer and as superintendent of a 500-employee underground coal mine and surface facilities. In academia, he has been a professor, a chair, and a dean, and has published 174 technical articles, reports, and book chapters, including 62 articles in peer-reviewed journals. His publications largely focus on mine health and safety, including on underground coal mines, and mine management applications. Dr. Grayson is a registered professional engineer in Pennsylvania and is a certified Mine Foreman and Mine Examiner in Pennsylvania. He received a Ph.D. in engineering from West Virginia University.

Braden Lusk

Member

Braden T. Lusk is chair of the Mining and Nuclear Engineering Department at the Missouri University for Science and Technology. Previously, he was a Professor of Mining Engineering at the University of Kentucky. His research interests primarily focus on industrial/mine blasting and blast mitigation, including optimizing blasting operations for fragmentation, productivity, product selection, and environmental effects. His research specialties also include numerical modeling using physics-based models for high energy events, blast resistant testing and evaluation, and monitoring and analysis of vibrations for mining and industrial blasting. Dr. Lusk received the UK College of Engineering's Dean's Award for Excellence in Research in 2014 and received the Tau Beta Pi Outstanding Teacher in Mining Engineering Award seven times. Active in the International Society of Explosives Engineers (ISEE), Dr. Lusk has served on the ISEE board of directors since 2013 and currently serves as secretary. He received the ISEE President's Award in 2012. Also in 2012, he received the Society of Mining, Metallurgy and Exploration (SME) Coal and Energy Division J.W. Woomer Award. Dr. Lusk earned a Ph.D. in mining engineering from the Missouri University of Science and Technology.

Michael McCawley

Member

Michael McCawley is the interim chair in the Department of Occupational and Environmental Health Sciences at West Virginia University. He has taught at that university since 1979, with primary interests in air pollution, aerosols and occupational health. He has developed air sampling equipment and a pulmonary function test. Recently, he has been working on issues related to Marcellus Shale drilling and mountain top mining. Dr. McCawley serves as a member of the World Trade Center Health Program Scientific/Technical Advisory Committee. He had spent more than 27 years as a Public Health Service Officer with the Centers for Disease Control and Prevention (CDC) at the National Institute for Occupational Safety and Health, studying miners' health, occupational respiratory disease, aerosol measurement and ultrafine particles. While there he worked on projects concerning exposure to wood dust, volcanic ash, diesels, coal mine dust, silica and beryllium. He retired from the US Public Health Service in 2001. Dr. McCawley has a M.S. in engineering from West Virginia University and a Ph.D. in environmental health from New York University.

Raja V. Ramani

Member

Raja V. Ramani (NAE) is an independent consultant, Emeritus Professor of Mining and Geo-Environmental Engineering, and Emeritus George H. Jr and Anne B. Deike Chair in Mining Engineering at The Pennsylvania State University. Dr. Ramani's research activities include flow mechanisms of air, gas, and dust through mining systems; innovative mining methods; simulation and mathematical programming; equipment selection; management issues of health, safety, productivity, costs, and human resource development; environmental monitoring; resource conservation; mined land reclamation; land use planning; and environmental site planning for underground and surface mining. Dr. Ramani's experience in mineral extension education has spanned more than 45 years including: planning, developing, directing, and conducting short courses for across academia and the public and private sectors. As a part of his research and consulting experiences, Dr. Ramani has visited mining operations in over 35 countries. He is active in several technical and professional societies and was the 1995 president of the Society for Mining, Metallurgy and Exploration (SME). He has served on several expert panels for U.S. and State government agencies and as consultant to national and international agencies and mining companies world-wide on health, safety, productivity and environmental issues. He chaired the National Academies Committee on Underground Mine Disaster Survival and Rescue and the National Academies Committee to Review the NIOSH Mining Safety and Health Research Program. In addition, he has served as a member of the Panel on Technologies for the Mining Industry, Committee on the Study on Preventing Coal Waste Impoundment Failures and Breakthroughs, Committee on the Review of NIOSH Research Programs, and the Committee on Coal Research, Technology, and Resource Assessments to Inform Energy Policy. He is also a member of the Health Research Panel of the National Academies Committee on the Research Programs of the U.S. Bureau of Mines. He is a member of the National Academy of Engineering. A graduate of the Indian School of Mines, Dr. Ramani received a Ph.D. in mining engineering from Pennsylvania State University.

Cecile S. Rose

Member

Cecile S. Rose is a Professor of Medicine in the Division of Environmental and Occupational Health Sciences at National Jewish Health, and has academic appointments in the Division of Pulmonary Sciences and Critical Care Medicine at the University of Colorado and in the Department of Environmental and Occupational Health at the Colorado School of Public Health. Her research interests focus on mining-related cardiopulmonary diseases and on lung diseases following post-9/11 military deployment. Dr. Rose served between 2014 - 2016 as chair of the NIOSH Research Study Section and for several years as chair of the NIOSH Mine Safety and Health Research Advisory Committee. She has served on the National Academy of Sciences Committee on the Assessment of the Department of Veterans Affairs Airborne Hazards and Open Burn Pit Registry and on the standing Committee on Personal Protective Equipment in the Workplace. Dr. Rose received her MD and MPH degrees from the University of Illinois Chicago. She is board-certified in internal medicine, pulmonary medicine, and occupational and environmental medicine. She has an active clinical practice in occupational and environmental lung diseases as well as sustained funding for research in that area.

Emily Sarver

Member

Emily A. Sarver is an associate professor in the Department of Mining and Minerals Engineering at the Virginia Polytechnic Institute and State University (Virginia Tech). She is also an adjunct faculty member in the Department of Civil and Environmental Engineering at Virginia Tech. Her primary research and outreach focuses on monitoring, characterization and control of mine-generated contaminants that have implications for occupational or environmental health. She has specific expertise in respirable dust and diesel particulate in underground mines, and has led work on several funded projects to characterize respirable particulates in coal mines. This work has used a variety of analytical techniques, some of which have not been previously applied to mine dusts. Dr. Sarver also has expertise in respirable particulate sampling and real-time monitoring in mine environments. Her other research interests include responsible development of mineral and energy resources, hydrometallurgy, and corrosion. In 2015, Dr. Sarver was named one of the first two recipients of the Freeport-McMoRan, Inc. Career Development Grant, awarded by the Society for Mining, Metallurgy & Exploration (SME). She was also the recipient of the 2017 Health & Safety Research and Educational Excellence Award and the 2016 Mineral Processing Division Young Engineer Award from the SME, and the 2015 Outstanding Researcher Award from the Appalachian Research Initiative for Environmental Science. Dr. Sarver holds B.S. and M.S. degrees in mining engineering and a Ph.D. in civil engineering from Virginia Tech..

Joseph Sbaffoni

Member

Joseph A. Sbaffoni is Principle for JAS MINE CONSULTING LLC, offering consulting services to the mining industry. He has more than 47 years of experience in miner health and safety program areas including mine inspection, miner training, miner certification, equipment approval, accident investigation and emergency response. Mr. Sbaffoni began his career in mining in 1970, was certified as a Pennsylvania Mine Foreman in 1975 and held a range of management positions in Pennsylvania's mines rising to the position of mine superintendent. He was certified as a Pennsylvania Bituminous Mine Inspector and was appointed sequentially to the positions of Bituminous Deep Mine Inspector (1984), Bituminous Division Chief (1988), and Director (2003), in the Pennsylvania Bureau of Mine Safety. During his tenure, Mr. Sbaffoni played a major role in updating and improving all mine health and safety programs in the Commonwealth. Mr. Sbaffoni played a key role in the Quecreek mine rescue of nine trapped miners in 2002. He was instrumental in the enactment of the Mine Families First Act in 2007 and a new Mine Safety Act for Bituminous Coal Mines in 2009 which contributed to the outcome of fatal free years in Pennsylvania's underground mines in 2010, 2011, 2012, 2013 and 2014. He served on NIOSH's Mine Safety and Health Research Advisory Committee from 2004 to 2012. He holds an Associate Degree in Mining Technology from Pennsylvania State University and was recognized as a Centennial Fellow in 1996, received a Special Recognition for Sciences and Engineering in Service to Society award in 2002 and the Robert Stefanko Distinguished Achievement Award in Mineral Engineering in 2010. He is a member of the Penn State Mining Engineering Industrial and Professional Advisory Committee and the Eberly Campus Advisory Board and Mining Industry Advisory Board. He is a past president and member of the Joseph A Holmes Safety Association, National Mine Rescue Association, Mine Rescue Veterans of the Pittsburgh District, Pittsburgh Coal Mining Institute of America, Mine Safety Institute of America and Pennsylvania Bituminous Safety Association.

Michael J. Wright

Member

Michael J. Wright is the director of Health, Safety and Environment for the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union. He is a former member of the Department of Labor's National Advisory Committee on Occupational Safety and Health and EPA's Clean Air Act Advisory Committee. He has worked extensively on international health, safety and environment issues with the International Labour Organization and the International Trade Union Confederation. He currently serves on the world's first global union-management safety and health committee, established in 2009 by ArcelorMittal Steel. He is a member of NIOSH's Mine Safety and Health Research Advisory Committee. He has taught safety and health, and worked with unions in South Africa, Zimbabwe, India, Brazil, Mexico, Argentina, Poland, Romania, Bosnia-Herzegovina and Russia. He was a member of an international team that investigated the Bhopal disaster. He is a former member of the Program Advisory Committee of the International Program on Chemical Safety, set up under the ILO, the World Health Organization, and the United Nations Environment Program. He also served on the international coordinating group overseeing the effort to harmonize chemical classification and labeling systems throughout the world, whose work was completed in 2003. Mr. Wright worked on several MSHA rulemakings, most notably on the standard for diesel particulate in underground metal and non-metal mines. In addition, he has worked on safety and health issues in iron, copper, silver, trona, potash, uranium and nickel mines in the United States and Canada. Mr. Wright received an M.S. degree in industrial hygiene from the Harvard School of Public Health.