

**U.S. Environmental Protection Agency  
Clean Air Scientific Advisory Committee  
Ozone Review Panel  
Biosketches**

**Henderson, Rogene      Chair**

**Lovelace Respiratory Research Institute**

Dr. Rogene Henderson is a Senior Scientist Emeritus at the Lovelace Respiratory Research Institute. Dr. Henderson earned her Ph.D. in chemistry from the University of Texas in 1960 and her B.S./B.A. in chemistry/biology from Texas Christian University in 1955. She was a Fulbright Scholar in physical chemistry in 1955-1956 and held fellowships at the Universities of Texas and Arkansas. Dr. Henderson's research interests are in three major areas: (1) biochemistry of the lung, particularly the surfactant lining layer — she has developed in vivo screening tests for pulmonary toxicants based on analysis of bronchoalveolar washings for biomarkers of lung injury and repair; (2) the mechanisms by which pulmonary inflammation leads to repair or to chronic disease (fibrosis, emphysema); and (3) the pharmacokinetics of inhaled xenobiotics (particularly vapors) and chemical-specific biomarkers of chemical exposure. She has recently conducted studies on the health effects of low-level sarin exposures in rats. Dr. Henderson is currently a member of: the U.S. Army Deployment Toxicology Science Working Group, a member and Vice-Chair of the Board of Scientific Councilors (BOSC) for the U.S. Environmental Protection Agency (EPA) Office of Research and Development; and a member of the American Cancer Society (ACS) Advisory Group on Cancer and the Environment. She is a former member of the NIEHS Advisory Council (1991-95), the Health Effects Institute Research Committee (1997-2005), and the National Research Council/National Academy of Sciences (NRC/NAS) Board on Environmental Studies and Toxicology (1998-2004). Other past advisory committee activities include: Member, NIH Toxicology Study Section (1982-86); Member, NRC/NAS Committee on Epidemiology of Air Pollution (1984-85); Member, New Mexico PCB Expert Advisory Panel (1985-86); Member, NAS/NRC Committee on Toxicology (1985-1991); Chair, NAS/NRC Committee on Toxicology (1992-1998); Chair, Panel on Hyperbarics and Mixtures, NAS/NRC Subcommittee on Submarine Air Quality (1986-88); Member, NAS/NRS Committee on Biological Markers (1986-89); Chair, NAS/NRC Subcommittee on Biological Markers in Pulmonary Toxicology (1986-89); Member, Advisory Committee for the Burroughs Wellcome Toxicology Scholar Award (1987-89); Member, Associated Western Universities Laboratory Advisory Board (1988-89); Member, NAS/NRC Committee on Risk Assessment Methodology (1989-91); Member, NAS/NRC Subcommittee on Spacecraft Maximum Allowable Concentrations for Space Station Contaminants (1989-94); Member, World Health Organization (WHO) Advisory Group on Use of Biological Markers in Risk Assessment (1989, 1992); Member, NAS/NRC Subcommittee on Guidelines for Estimating Acceptable Acute Exposures for Hazardous Substances (1990-92); Member, WHO Task Group on Benzene (1991); Member, EPA Science Advisory Board (SAB) Environmental Health Committee (1991-95); Chair, NAS/NRC Subcommittee on Permissible Exposure Levels for Military Jet Fuels (1992-96); Member, EPA/HERL Ad Hoc Advisory Group on Applications of Specimen Banking, Biological Monitoring and Biological Markers for Exposure Assessment (1993); Member, ILSI/EPA Committee on Dose Selection for Chronic Bioassays (1993); member, WHO Panel on Biomarkers in Australia (1993); Member, American Petroleum Institute (API) Advisory Panel on Benzene (1993); Member, EPA Advisory Panel on Revising the Ozone Criteria Document (1993); Member, NAS/NRC Subcommittee on Military Smokes and Obscurants (1994-98); Member, Scientific Advisory Panel of the Mickey Leland National Urban Air Toxics Research Center (1995-97); Invited Member of the January 1995 National Toxicology Program Workshop on "Mechanism-Based Toxicology in Cancer Risk Assessment: Implications for Research, Regulation, and Legislation;" Member of the Ad Hoc Advisory Group on Biologic Markers for EPA SAB, Environmental Health Committee (1989); Member, Naval Submarine Medical Research Laboratory Submarine Atmosphere Health Assessment Program (1995); Chair, NAS/NRC Subcommittee on Zinc Cadmium Sulfide (1995-98); Chair, NAS/NRC Committee on Risk-Based Criteria for Non-RCRA Hazardous Waste (1998-99); Member, IOM Committee to Assess Science Base for Tobacco Harm Reduction (1999-2001); Member, NAS/NRC Committee on Estimating the Public Health Benefits of Proposed Air Pollution Regulations (2000-2002); Chair, NAS/NRC Committee on Assessing Human Health Risks of Trichloroethylene ((2004-); Chair, BOSC Symposium on Risk Assessment Practices of the EPA (2004); Chair, Review Panel for the US EPA PM/O<sub>3</sub> Research Program (2005); Co-Chair, WHO Task Group on Environmental Health Criteria for Bentonite, Kaolin and Selected Clay Minerals (2005); member, Institute of Medicine (IOM) Committee on Asbestos: Selected Health Effects (2005-). Dr. Henderson is a National Associate of the NAS. Since October 2004, she has served as the Chair of EPA's Clean Air Scientific Advisory Committee (CASAC).

## Balmes, John

### University of California

Dr. Balmes is a Professor of Medicine at the University of California, San Francisco (UCSF) where he is the Chief of the Division of Occupational and Environmental Medicine at San Francisco General Hospital (SFGH), Director of the Human Exposure Laboratory of the Lung Biology Center, and the Principal Investigator of the UCSF Pediatric Environmental Health Specialty Unit. He is also Professor of Environmental Health Sciences at the University of California, Berkeley where he is the Director of the Northern California Center for Occupational and Environmental Health and the Center for Excellence in Environmental Public Health Tracking. Dr. Balmes received his BA from the University of Illinois (Urbana) in 1972. He received his MD from the Mount Sinai School of Medicine of the City University of New York in 1976. He completed a Residency in Internal Medicine at the Mount Sinai Hospital at New York City in 1979 and a fellowship in Pulmonary Medicine with additional training in occupational medicine in 1982. He is board-certified in Internal Medicine and Pulmonary Medicine and actively practices pulmonary and critical care medicine at SFGH. Dr. Balmes leads a research program involving the respiratory effects of ambient air pollutants. In his laboratory at UCSF, he conducts controlled human exposure studies of the acute effects of ozone and other pollutants. At UC Berkeley, he collaborates in epidemiological studies of the chronic effects of air pollutants. He has published over 160 papers or chapters on occupational and environmental respiratory disease-related topics with many of these dealing with the potential health effects of ambient air pollutants, especially ozone. Dr. Balmes' expertise in the health effects of ambient air pollutants has been recognized by multiple awards including the following: an Environmental/Occupational Medicine Academic Award from the National Institute of Environmental Health Science (1991-1996); the Clean Air Research Award from the American Lung Association of San Francisco and San Mateo in 1997; and the Clean Air Award from the American Lung Association of California in 1999. Dr. Balmes currently serves as a member of the Research Screening Committee of the California Air Resources Board (CARB) and was a member of the Air Quality Advisory Committee of the Office of Environmental Health Hazard Assessment of the California Environmental Protection Agency from 1992-2004. He has served the U.S. Environmental Protection Agency in many capacities. In 1992, he served on the Clean Air Scientific Advisory Committee Oxides of Nitrogen Review Panel and was invited to participate in a Workshop on Health Issues on Air Quality Criteria for Ozone and Related Photochemical Oxidants. He contributed to the writing of the Air Quality Criteria Document for Ozone in 1993-1994. He was a Consultant Reviewer of the Air Quality Criteria Document for Particulate Matter in 1995, was invited to participate in a Workshop on Asthma and the Environment in 1996, and was a Consultant Reviewer of the Air Quality Criteria Document for Ozone in 2003. In addition, he served as a consultant advisor regarding epidemiologic research on the health effects of ozone to the Health Effects Institute from 1990-1992. Dr. Balmes' research program has been supported by the National Institutes of Health, the Health Effects Institute, the Centers for Disease Control and Prevention, the California Air Resources Board, and the Flight Attendants Medical Research Institute. Currently funded projects include a study of the effects of chronic exposure to ozone on lung function (NHLBI), a study of the respiratory effects of early life exposure to biomass smoke (NIEHS), a study of both short-term and long-term responses of asthmatic children to air pollutants (CARB), a study of the effects of polymorphisms in antioxidant enzymes on ozone-induced allergic airway inflammation (CARB), and a center of excellence for environmental public health tracking (CDC). Dr. Balmes is on the editorial board of the International Journal of Occupational and Environmental Health and is an active reviewer for multiple clinical and environmental health journals, including the New England Journal of Medicine, JAMA, the American Journal of Respiratory and Critical Care Medicine, the European Respiratory Journal, Occupational and Environmental Medicine, and Environmental Health Perspectives. Dr. Balmes is a member of multiple professional societies and organizations, including the American and California Thoracic Societies, the American College of Chest Physicians, the American College of Occupational and Environmental Medicine, the Society for Occupational and Environmental Health, and the International Society for Environmental Epidemiology. He was Chair of the Environmental and Occupational Health Scientific Assembly of the American Thoracic Society in 1997-1999 and President of the California Thoracic Society in 2001-2002.

## **Cowling, Ellis**

### **North Carolina State University**

Dr. Ellis B. Cowling is a University Distinguished Professor At-Large, Colleges of Natural Resources and Agriculture and Life Sciences, North Carolina State University (NCSU). He received his B.S. (Wood Technology, 1954) and M.S. (Forest Pathology, 1956) from the State University College of Forestry at Syracuse University; his Ph.D. (Plant Pathology/Biochemistry, 1959) from the University of Wisconsin; and his Filosofie Licensiat (1960) and Filosofie Doktor (1970) in Physiological Botany from the Institute for Physiological Botany, University of Uppsala (Sweden). Since 1995, Dr. Cowling has been a Visiting Eminent Scholar, School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA. From 1978 to 1991, he served as Associate Dean for Graduate Education and Research in the College of Forest Resources at NCSU. Dr. Cowling held an appointment as an Adjunct Fellow, Kennedy School of Government, Harvard University, from 1993 to 2000. Dr. Cowling is regarded as a world leader in air pollution research. He was elected to membership in the National Academy of Sciences (NAS) in 1973. Dr. Cowling is currently Director of the Southern Oxidants Study, a strategic alliance of 490 scientists in 40 universities and 42 federal, state, and industrial organizations who investigate the chemistry, meteorology, biology, and management of ozone and particulate matter pollution and its public health and ecological effects in the southeastern United States. Dr. Cowling is the co-author of two books, and has 341 publications in referenced journals and other scientific contributions.

## **Crapo, James**

### **National Jewish Medical and Research Center**

Dr. James Crapo is Professor of Medicine at the National Jewish Medical and Research Center (NJMRC) in Denver, CO. Dr. Crapo is also a Professor of Medicine and the Director of Ph.D. Programs for Graduate Health Care Professionals at the University of Colorado Health Sciences Center. He received his B.S. in Chemistry from Brigham Young University (1967) and his M.D. from the University of Rochester (1971). Prior to coming to NJMRC in 1996, Dr. Crapo spent over 15 years as the Chief of the Pulmonary and Critical Care Medicine Division at Duke University Medical Center. Throughout his professional career, Dr. Crapo has been active in numerous professional societies, including service on the National Heart, Lung and Blood Institute (NHLBI) Advisory Council and serving as President of the American Thoracic Society and the Fleischner Society. He is also a member of the American Society for Clinical Investigation, the Association of American Physicians, and the Society of Toxicology. In addition, Dr. Crapo is a Fellow of the American College of Chest Physicians, the American College of Physicians, and the Royal College of Physicians, Edinburgh, Scotland. He was a Consultant to the Ozone Review Panel of EPA's Clean Air Scientific Advisory Committee (CASAC) from 1984-1990. Dr. Crapo is the holder of four U.S. Patents, with five other Patents pending, and has in excess of 200 publications.

## **Crawford-Brown, Douglas**

### **University of North Carolina at Chapel Hill**

Dr. Douglas Crawford-Brown is Professor in Environmental Sciences and Engineering and in Public Policy, and Director of the campus-wide Carolina Environmental Program, at the University of North Carolina at Chapel Hill. Through the CEP, he coordinates environmental research, education and outreach on campus. He received his degrees in physics (BS, 1975; MS, 1977) and nuclear science (PhD, 1980) from the Georgia Institute of Technology. Dr. Crawford-Brown's His activities focus on the modeling of human health risks — primarily of carcinogens — the modeling of alternative policies to tackle a range of environmental problems, and development of tools of risk assessment for application in risk-cost-benefit assessments and uncertainty analyses. He is the author of 130 academic articles and five books on these topics. In November 2006, the EPA Administrator appointed Dr. Crawford-Brown as a member of the Clean Air Scientific Advisory Committee (CASAC). In addition, he has served on a wide variety of state, national and international commissions addressing environmental issues. These include EPA Federal advisory committees on endocrine disruptors, the National Pollution Prevention and Toxics Advisory Committee, and the National Drinking Water Advisory Committee (CCL subgroup).

## Gauderman, William

### University of Southern California

Dr. Gauderman is Associate Professor of Preventive Medicine at the University of Southern California (USC). He is currently director of the biostatistics core for an NIH-funded program project grant entitled "Genetics, Air Pollution and Respiratory Effects in Children and Young Adults." This project is focused on determining whether air pollution in southern California is associated with permanent deficits in lung function and with increased risk of asthma, and whether these effects are magnified in genetically susceptible subgroups. Dr. Gauderman is also principal investigator of an NIH-funded research project entitled "Statistical Approaches to the Study of Gene-Environment Interaction." In this work, he has developed statistical methods for finding and characterizing genes that interact with environmental factors to cause disease. Dr. Gauderman also collaborates with many investigators in the design and statistical analysis of several studies, including studies of colorectal and breast cancer, and studies focused on assessing exposure to air pollution. Dr. Gauderman has published 68 articles in peer-reviewed scientific journals, including journals that focus on statistical methods, epidemiology, and respiratory health. Two of his papers, related to the association between air pollution and children's lung function development, have demonstrated that exposure to air pollution can have long-term effects on children's respiratory health. This work has had a significant impact in both the scientific and regulatory communities. Dr. Gauderman received a B.A. in mathematics from California State University, Fullerton in 1986, an M.S. in biometry from USC in 1988, and a Ph.D. in biometry from USC in 1992. In addition to the above-mentioned NIH-funded projects, Dr. Gauderman is also supported through December, 2003 on a contract from the California Air Resources Board. This contract has supported The Children's Health Study, a 10-year cohort study initiated in 1993 to study the effects of air pollution on children's respiratory health. The program project grant mentioned above is based largely on continued follow-up of this Children's Health Study cohort. Dr. Gauderman also has additional support to collaborate on other health-related research projects, including support from NCI, NIEHS, NHLBI, and EPA.

## Gong, Henry

### University of Southern California

Dr. Henry Gong, Jr., M.D., received his B.A. (Biology) from the University of the Pacific, Stockton, CA, and his M.D. in 1973 from the University of California at Davis. He then completed a Medicine residency at Boston University Medical Center and a Pulmonary Medicine Fellowship at the University of California at Los Angeles (UCLA). Dr. Gong remained on the full-time UCLA faculty for 15 years. He was the Associate Chief of the Pulmonary and Critical Care Medicine Division, UCLA Medical Center (1985-1992), and promoted to Professor of Medicine in 1989. Dr. Gong moved to Rancho Los Amigos Medical Center (RLAMC), Downey, CA, in 1992, where he has since been the Chief of the Environmental Health Service, an established research facility investigating the health effects of air pollution. Since 1992, he is/was the Chair of the Department of Medicine, Medical Director of Respiratory Therapy, and Chair of the Research Committee (IRB) and the Continuing Medical Education Committee at RLAMC, as well as a Professor of Medicine and Preventive Medicine, University of Southern California (USC). Dr. Gong is an established, practicing Board-certified pulmonologist/internist with expertise in clinical asthma and altitude effects in patients with cardiopulmonary disorders. He has served on the Asthma Advisory Panel of Blue Cross of California since 1999. He was a Visiting Professor to Henry Ford Hospital and Medical Centers, Detroit, MI (June, 2000) and Singapore National University, Singapore (November, 2000). His long-time efforts in pollution-related health effects were recognized by his receipt of the 2000 Clean Air Award from the American Lung Association of California (September, 2000) and the Carl Moyer Award from the Coalition for Clean Air (May, 2001). Dr. Gong has written over 250 papers, chapters, or books on respiratory-related and air pollution topics, including ozone-related health effects. He was a key contributor to the monograph "Considerations for Diagnosing and Managing Asthma in the Elderly" (February, 1996, Division of Lung Diseases, NHLBI, NIH). Dr. Gong is/was on the Editorial Board of several journals (Journal of Clinical Pharmacology; The American Journal of Critical Care; Archives of Environmental Health) and a reviewer for over 20 clinical and environmental journals, including the New England Journal of Medicine, American Journal of Respiratory and Critical Care Medicine, Chest, Journal of Clinical Allergy and Immunology, Annals of Internal Medicine, Environmental Research, Archives of Environmental Health, Journal of the Air & Waste Management Association, and Environmental Health Perspectives. In addition, he has been a consultant or reviewer for numerous State, national, and other organizations, such as the Electric Power Research Institute, Southern California Edison, University of California Research Programs, U.S. Environmental Protection Agency (EPA), National Institute of Environmental Health Sciences (NIEHS), Health Effects Institute (HEI), and the Air Quality Advisory Committee of the California Environmental Protection Agency. Dr. Gong served on the Special Review Committee on "RFA 92-04, Ozone: Mechanisms of Action" (NIEHS, March, 1993) and as a Consultant/Contributor to the Air Quality Criteria for Ozone and Related Photochemical Oxidants (Revision), Environmental Criteria and Assessment Office (EPA, 1993-1994), as well as an external peer reviewer of the EPA's long-term Asthma Research Strategy (2000). Dr. Gong's research program has been supported by the U.S. EPA, NIEHS, California Air Resources Board, Electric Power Research Institute, American Lung Association, pharmaceutical firms, and other organizations. He is currently the Director and Principal Investigator of the five-year Southern California Center for Children's Environmental Health and Disease Prevention Research: Respiratory Disease and Prevention, which is co-funded by the NIEHS and U.S. EPA. Other recently-funded research involves controlled human exposures to concentrated ambient particulates and diesel exhaust (from Health Effects Institute and the EPA-supported Southern California Particle Center and Supersite) and to particulates with nitrogen dioxide (EPA). He serves on local and state air pollution committees, such as the PM10 Task Force and the Asthma and Outdoor Air Quality Consortium (South Coast Air Quality Management District). Dr. Gong is a member of numerous professional organizations or societies, such as the American Thoracic Society and Western Society for Clinical Investigation. Dr. Gong was President of the California Chapter of the American College of Chest Physicians in 1991-92. He is currently a Fellow and former Governor of Southern California of the American College of Chest Physicians.

## Hanson, Paul

### Oak Ridge National Laboratory

Dr. Paul J. Hanson is a Senior Research and Development Scientist of the Environmental Sciences Division, Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee. He graduated summa cum laude with a B.A. degree in biology from St. Cloud State University, St. Cloud, Minnesota, in 1981. Dr. Hanson also received M.S. and Ph.D. degrees from the University of Minnesota, St. Paul in the fields of plant and forest tree physiology, in 1983 and 1986, respectively. Dr. Hanson has conducted research on the impacts of air pollutant oxidants (ozone and hydrogen peroxide) on forest plant physiology and growth, the deposition of gaseous nitrogen compounds to plant surfaces, and the exchange of mercury vapor between terrestrial surfaces and the atmosphere. As a part of his work on the impact of ozone on northern red oak photosynthesis, ozone exposure and uptake response curves were evaluated. Dr. Hanson's current research focuses on the impacts of climatic change on the physiology, growth, and biogeochemical cycles of eastern deciduous forest ecosystems. He has authored or co-authored over 100 journal articles and book chapters, and has recently co-edited (and authored) a book titled "North American Temperate Deciduous Forest Responses to Changing Precipitation Regimes" published in 2003 as volume 166 of the Springer Ecological Studies series. Dr. Hanson was a contributing author to EPA's Air Quality Criteria Document (AQCD) for Particulate Matter (1994-1996), and the AQCD for Oxides of Nitrogen (1988-1990). Dr. Hanson served as an Associate Editor of the Journal of Environmental Quality for six years (1995-2000), and is a long-standing member of the editorial review board of Tree Physiology. He is a current member of the U.S. Department of Energy's National Technical Advisory Committee for the National Institute of Global Environmental Change (NIGEC), and has served on a number of peer-review panels for the evaluation of scientific proposals. Dr. Hanson received the 1995 Distinguished Scientific Achievement Award from the Environmental Sciences Division, Oak Ridge National Laboratory. Dr. Hanson's recently-funded grant proposals are as follows: (1) Regulation of carbon sequestration and water use in an Ozark Forest: Proposing a new strategically located Ameriflux tower site in Missouri; U.S. Department of Energy, 2003-2005; \$1.4 million over three years; (2) Identifying Critical Thresholds for Plant/Ecosystem Response to Moisture Stress; U.S. Department of Energy, 2002-2004; \$900,000 over three years; (3) Enriched Background Isotope Study (EBIS); U.S. Department of Energy, 2002-2004; \$2.7 million over three years; (4) Mechanisms of forest ecosystem adjustments to altered precipitation: the Walker Branch Throughfall Displacement Experiment (TDE); renewal proposal 2002-2006; \$2,200,000 over five years.

## Harkema, Jack

### Michigan State University

Jack Harkema, DVM, Ph.D., graduated with a B.S. from Calvin College, received an MS in Physiology and a DVM from Michigan State University and received a Ph.D. in Comparative Pathology from University of California-Davis. Dr. Harkema is currently a Professor of Comparative Pathology, College of Veterinary Medicine, at Michigan State University. After completing his National Institutes of Health (NIH)-sponsored Research and Residency Training Program at the University of California, Davis, CA, Dr. Harkema joined the Lovelace Inhalation Toxicology Research Institute (ITRI) in Albuquerque, NM in 1985 as an experimental pathologist. He later became the Project Manager of the Pathogenesis Group at ITRI. In 1994, Dr. Harkema joined the faculty in the College of Veterinary Medicine at Michigan State University (MSU) where he is currently a Professor of Comparative Pathology. He is an active member in the Institute of Environmental Toxicology and in the National Food Safety and Toxicology Center (NFSTC) at MSU. Dr. Harkema is the Director of the Laboratory for Experimental and Toxicologic Pathology in the NFSTC and the Director of the Mobile Air Research Laboratory at MSU. He is also the Co-Director of the MSU and the University of Michigan's Collaborative Air Research Effort (CARE). Dr. Harkema's research is designed to understand the cellular and molecular mechanisms involved in the pathogenesis of airway injury caused by the inhalation of airborne pollutants. He has research funding from the NIH, the Health Effects Institute, the MSU Foundation, the American Chemical Council, the Michigan Life Sciences Corridor Fund and various chemical and pharmaceutical industries. Besides training graduate students, residents and post-doctoral fellows in laboratory research, Dr. Harkema teaches comparative pathology of the respiratory system to veterinary students and coordinates a graduate course in toxicologic pathology. Dr. Harkema is a Diplomate of the American College of Veterinary Pathologists and a member of the Society of Toxicologic Pathologists, the Society of Toxicology, and the American Thoracic Society. Dr. Harkema's recent grant support includes Michigan Life Sciences Corridor Fund, NIH/NHLBI, NIH/NIDDK, NIH/NIEHS, the American Lung Association, the Health Effects Institute, USDA, and US-EPA.

## **Hopke, Philip**

### **Clarkson University**

Dr. Philip K. Hopke is the Bayard D. Clarkson distinguished professor at Clarkson University and the director of the Center for Air Resources Engineering and Science. Professor Hopke is the immediate past president of the American Association for Aerosol Research and was a member of the National Research Council's congressionally mandated Committee on Research Priorities for Airborne Particulate Matter and the Committee on Air Quality Management in the United States. He is a member of the National Research Council's U.S. Committee on Energy Futures and Air Pollution in Urban China and the United States. Professor Hopke received his B.S. in Chemistry from Trinity College (Hartford) and his M.A. and Ph.D. degrees in chemistry from Princeton University. After a post-doctoral appointment at M.I.T., he spent four years as an assistant professor at the State University College at Fredonia, NY. Dr. Hopke then joined the University of Illinois at Urbana-Champaign and subsequently came to Clarkson in 1989 as the Robert A. Plane Professor with a principal appointment in the Department of Chemistry. He has served as dean of the Graduate School, chair of the Department of Chemistry, and head of the Division of Chemical and Physical Sciences before he moved his principal appointment to the Department of Chemical Engineering in 2000

## **Kleinman, Michael**

### **University of California, Irvine**

Michael T. Kleinman has been studying the health effects of exposures to environmental contaminants found in ambient air for more than 30 years. He holds a MS in Chemistry from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is a Professor and Co-Director of the Air Pollution Health Effects Laboratory in the Department of Community and Environmental Medicine at University of California, Irvine. Prior to joining the faculty at U.C.I. in 1982, he directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He has published more than 85 articles in peer-reviewed journals dealing with the uptake and dosimetry of inhaled pollutants in humans and laboratory animals, and effects on cardiopulmonary and immunological systems after controlled exposures to ozone and other photochemical oxidants, carbon monoxide and ambient or laboratory-generated aerosols. He recently chaired a National Academy committee to examine issues in protecting deployed US Forces from the effects of chemical and biological weapons. Dr. Kleinman's current studies focus on cardiopulmonary effects of concentrated ambient ultrafine, fine and coarse particles. Specifically, Dr. Kleinman is currently the co-principal investigator of an NIH-funded investigation of the effects of environmental PM on children with asthma. Dr. Kleinman's also uses animal models (mice that are genetically predisposed to cardiopulmonary disease, aged rats as a model of aging human populations and a mouse model of allergic airways disease) to examine biological mechanisms of effects of inhaled air contaminants on the lungs and heart of normal and diseased individuals. Recent studies of the offspring of animals that were exposed to inhaled metal-containing particles demonstrate that in utero exposures may have important effects on the developing organism. Dr. Kleinman is a consultant to the U.S. EPA Science Advisory Board and currently serves as the Chair of the California Air Quality Advisory Committee, which reviews California's air quality criteria documents.

## **Legge, Allan**

### **Biosphere Solutions**

Dr. Allan Legge is currently President of Biosphere Solutions, an environmental consulting firm located in Calgary, Alberta, Canada. Prior to forming Biosphere Solutions in 1993, he was a Senior Research Scientist at the Kananaskis Center for Environmental Research at the University of Calgary from 1972 to 1990, and a Senior Research Officer in the Environmental Research and Engineering Department, Alberta Research Council from 1990 to 1993. Dr. Legge holds a B.A. in Biology and Dramatic Arts which was received from Whitman College, Walla Walla, Washington in 1965, and a Ph.D. in Plant Genetics/Ecology from Oregon State University in Corvallis, Oregon in 1971. His areas of specialization are environmental toxicology/atmospheric chemistry, and he focuses on the evaluation and assessment of the effects of the air pollutants SO<sub>2</sub>, O<sub>3</sub>, H<sub>2</sub>S, NO<sub>x</sub>, HF, PM and saline aerosols on forests and agricultural ecosystems. Dr. Legge has been a member of the EPA Science Advisory Board since 1985 and has served on the following: (1) Forest Effects Review Panel (Co-Chair), 1985; (2) Scientific and Technological Achievement Awards Subcommittee (STAA), intermittently from 1986 to 2002; and (3) Clean Air Scientific Advisory Committee (CASAC) as a consultant since 1994 on Review Panels dealing with Nitrogen Oxides, Ozone and Related Photochemical Oxidants, and Particulate Matter. He served as a member of the U.S. National Research Council Committee to Assess the North American Research Strategy on Tropospheric Ozone (NARSTO) from 1997 to 2000. Dr. Legge is an active member of the Air & Waste Management Association (AWMA), the Alberta Society for Professional Biologists, and the International Air Pollution Workshop. He was elected as a Fellow of the American Association for the Advancement of Science (AAAS) in 1992, and a Fellow of the AWMA in 2002. Dr. Legge's primary sources of recent grant and/or contract support have been from resource extraction industries (oil and gas; cement) in Canada, Alberta Environment (provincial government), non-governmental organizations and legal firms.

## **Lippmann, Morton**

### **New York University School of Medicine**

Dr. Lippmann is a Professor of Environmental Medicine at the New York University (NYU) School of Medicine. He holds a Ph.D. (NYU, 1967) in Environmental Health Science, an S.M. (Harvard University, 1955) in Industrial Hygiene, and a B.Ch.E. (The Cooper Union, 1954) in Chemical Engineering. At NYU, he directs a research program on Human Exposure and Health Effects, and the EPA-supported Particulate Matter Health Effects Research Center. He has been the recipient of numerous awards for his research and contributions in aerosol science and pulmonary physiology, human exposure assessment and dosimetry, chemical transformations in the atmosphere, population studies of exposure-response relationships in occupational and community cohorts, and factors affecting the toxicity of airborne fibers. Much of this research has been focused on specific chemical agents, notably ozone, sulfuric acid, and asbestos. Dr. Lippmann is a past President of the International Society of Exposure Analysis (1994-1995), past Chairman of: the American Conference of Governmental Industrial Hygienists (1982-1983); the EPA Science Advisory Board's Executive Committee (2000-2001); EPA's Advisory Committee on Indoor Air Quality and Total Human Exposure (1987-1993); and EPA's Clean Air Scientific Advisory Committee (1983-1987). He has also chaired and been a member of numerous National Research Council committees, including committees on the airliner cabin environment and the health of passengers and crew, synthetic vitreous fibers, measurement and control of respirable dust in mines, indoor pollutants, toxicity data elements, and in-vivo toxicity testing of complex mixtures. His publications include over 290 research and review papers in the scientific literature and two reference texts on environmental health science.

## **Miller, Frederick**

### **Consultant**

Fred J. Miller, Ph.D. is currently an independent consultant in dosimetry and inhalation toxicology. From February, 1991 until April, 2005 he was employed in various capacities at the CIIT Centers for Health Research (CIIT) and its predecessor organization, the Chemical Industry Institute of Toxicology, serving most recently as Vice President for Research. Dr. Miller received a B.A. and M.S. in Statistics from the University of Wyoming. In 1968, he began a career as a commissioned officer in the U.S. Public Health Service (PHS). As a mathematical statistician involved with the design and analysis of studies on the effects of air pollutants on animals, Dr. Miller became interested in the use of such studies for assessing human health risks. He was assigned to the U.S. Environmental Protection Agency (EPA) when it was created in 1970. In 1971, he received an EPA long-term training award, which led to his doctoral research on the transport and removal of ozone in the lungs of animals and man. He received a Ph.D. in Statistics from North Carolina State University in 1977. Dr. Miller is interested in developing and implementing research strategies and projects that permit increased utilization of animal toxicological results to evaluate the likelihood of human risk from exposure to inhaled chemicals. His primary research interests include pulmonary toxicology, respiratory tract dosimetry of gases and particles, lung physiology and anatomy, extrapolation modeling, and risk assessment. He is internationally recognized for his research on the dosimetry of reactive gases. Dr. Miller is active in professional societies and consulting on environmental health issues. The author or co-author of more than 150 publications, Dr. Miller received a number of Scientific and Technical Achievement awards from EPA and is the recipient of the PHS' Outstanding Service Medal.

## **Morandi, Maria**

### **University of Texas - Houston Health Science Center**

Dr. Maria Morandi is an Assistant Professor of Environmental Sciences and Occupational Health at the School of Public Health of the University of Texas at Houston. She holds a BS degree in Chemistry from the City College of New York (1978), and MS (1981) and Ph.D. (1985) degrees in Environmental Sciences from the Norton Nelson Institute of Environmental Medicine of New York University. Dr. Morandi is also certified in Industrial Hygiene (CIH) by the American Board of Industrial Hygiene. Dr. Morandi's areas of expertise include assessment of indoor, outdoor and personal air concentrations of airborne contaminants in community and occupational environments, development of methods for personal exposure monitoring of gas and particle-phase airborne chemicals, evaluation of the effects from exposure to airborne particles and ozone on human and murine alveolar macrophages, cardiovascular effects from exposure to urban particulate matter and manufactured nanoparticles in sensitive individuals, and effects from exposure to airborne particles, ozone, and air toxics in children with asthma. She has also performed statistical modeling of PM source contributions. Dr. Morandi served as a member of the Integrated Human Exposure Assessment Committee of the EPA Science Advisory Board from 1992 and 1998, and 2003 to the present time. She was as member of the Research Strategies Advisory Committee between 1998 and 2003, and served in the Clean Air Scientific Advisory Committee (CASAC) CASAC Review Panel for the ozone AQDR. Dr. Morandi has also served as member or chair of several EPA program review panels, the Agency for Toxic Substances Board of Scientific Councilors, the National Institute of Occupational Health Study Section, and the Chemical Exposures Working Group for the National Children Study (NCS). Currently, she is a member of the Board of Scientific Counselors (BOSC) of the National Toxicology Program (NIEHS). Dr. Morandi's sources of recent grant and/or other contract support funding include: (1) U.S. Environmental Protection Agency (several contracts on the use of passive dosimeters for monitoring indoor, outdoor and personal air concentrations of air toxics; a STAR grant on the effect of PM on murine and human alveolar macrophages; and an evaluation of the impact of attached garages on indoor and personal air concentrations of VOCs); (2) NIEHS on the impact of exposure of CAPs on lung surfactant using a murine neonate model; (3) the Mickey Leland National Urban Air Toxics Research Center (impact of exposure to airborne carbonyls, PM and ozone on children with asthma and the Houston Exposure to Air Toxics Study); (4) The Health Effects Institute (HEI) (a population-based exposure study, and effects from exposure to PM on endothelial dysfunction); and (5) NIOSH (for training Industrial Hygienists).

## **Plopper, Charles**

### **University of California**

Dr. Charles Plopper is currently a Professor in the Department of Anatomy, Physiology, and Cell Biology at the University of California, Davis, CA. He also serves as a Unit Leader (Respiratory Diseases Unit) and Director of the Inhalation Exposure Facility at the California National Primate Research Center. Dr. Plopper received a B.A. in Anthropology and Zoology (1967) and a Ph.D. in Anatomy/Cell Biology (1972) from the University of California, Davis. After completing his Ph.D., Dr. Plopper served as a biomedical research officer in the U.S. Army Medical Research Command in Denver and San Francisco. Subsequently, he held faculty positions at the University Of Hawaii School Of Medicine and the University of Kuwait School of Medicine, prior to joining the Laboratory of Pulmonary Function and Toxicology at the National Institute of Environmental Health Sciences. He has been on the faculty at the University of California, Davis, since 1979. Dr. Plopper's research interests since beginning graduate school has been to define the cellular mechanisms and processes underlying the response of the respiratory system to environmental toxicants. Current projects include: establishment of a model of childhood environmental asthma using infant rhesus monkeys exposed to ozone and known human allergens; identification of mechanisms of enhanced susceptibility of neonates to bio-activated lung toxicants; definition of cellular mechanisms which prevent repair of toxic lung injury in neonates; definition of the role of glutathione pools in cellular protection from oxidant lung injury and the development of tolerance by repeated exposure. Portions of Dr. Plopper's research have been supported by the NIEHS, NHLBI, USEPA, NIAID, Health Effects Institute, and California Air Resources Board. Dr. Plopper is the author or co-author of over 250 original publications and review articles, and recently served as co-author for the book entitled: The Lung: Development Aging and the Environment. Dr. Plopper has served on a variety of governmental and private regulatory boards. He currently serves as a member of the Scientific Advisory Boards for the NHLBI Inner City Asthma Consortium and the NHLBI Center for Fetal Gene Therapy for Lung, Heart, and Blood Diseases, and is a member of the Scientific Review Panel on Toxic Air Contaminants and the Air Quality Review Committee for the for the CAEPA (Office of Environmental Health Hazard Assessment and Air Resources Board).

## **Poirot, Richard**

### **Vermont Agency of Natural Resources**

Mr. Richard L. Poirot has worked as an environmental analyst in the Air Quality Planning section of the Vermont Department of Environmental Conservation since 1978. His responsibilities include developing the technical support for State Implementation Plans (SIPs) to ensure attainment and maintenance of Federal and State standards for ozone, particulate matter, and regional haze. Mr. Poirot has also developed interests in drawing inference on the nature of pollution sources from analysis of ambient measurement data, and in working in collaborative regional scientific of science/policy forums. For example, he is or has been a participant on Ambient Monitoring and Assessment Committee for the Northeast States for Coordinated Air Use Management, the Data Analysis workgroup for the Ozone Transport Assessment Group, the Science and Technical Support Workgroup for the FACA Subcommittee on Ozone, Particulate Matter and Regional Haze, the Monitoring and Data Analysis Workgroup for the Mid Atlantic/Northeast Visibility Union (MANE-VU), the EPA PM-2.5 Data Analysis workgroup, the Steering Committee for the Interagency Monitoring of Protected Visual Environments, and the US/Canada (Air Quality Agreement) Subcommittee on Scientific Cooperation. Mr. Poirot holds a B.A. degree from Dartmouth College, where he majored in geography and environmental studies.

## **Russell, Armistead**

### **Georgia Institute of Technology**

Dr. Armistead (Ted) Russell is the Georgia Power Distinguished Professor and Coordinator of Environmental Engineering at the Georgia Institute of Technology. Professor Russell arrived at Georgia Tech in 1996 from Carnegie Mellon University, and has expertise in air quality engineering, with particular emphasis in air quality modeling, air quality monitoring and analysis. He earned his M.S. and Ph.D. degrees in Mechanical Engineering at the California Institute of Technology in 1980 and 1985, conducting his research at Caltech's Environmental Quality Laboratory. His B.S. is from Washington State University (1979). Dr. Russell is currently on the National Research Council's Board of Environmental Studies and Toxicology, and has been a member of a number of the NRC committees, including chairing the Committee to Review EPA's Mobile Model and chairing the committee on Carbon Monoxide Episodes in Meteorological and Topographical Problem Areas, and serving on the committee on Tropospheric Ozone Formation and Measurement, the committee on ozone forming potential of reformulated fuels and the committee on Risk Assessment of Hazardous Air Pollutants. In November 2006, the EPA Administrator appointed Dr. Russell as a member of the Clean Air Scientific Advisory Committee (CASAC). Dr. Russell also serves as an expert panel member on both the CASAC Ozone Review Panel and the CASAC Ambient Air Monitoring and Methods (AAMM) Subcommittee. He previously served on three other EPA Science Advisory Board (SAB) or CASAC subcommittees: the SAB Workgroup on Air Monitoring Plan related to Hurricane Katrina (Chair); the CASAC National Ambient Air Monitoring Strategy (NAAMS) Subcommittee; and the Subcommittee on Air Quality Modeling of the Advisory Council on Clean Air Compliance Analysis. In addition, Dr. Russell served on EPA's Clean Air Act Advisory Committee (CAAAC) Subcommittee on Ozone, Particulate Matter and Regional Haze Implementation Programs. He was also a member of the North American Research Strategy for Tropospheric Ozone (NARSTO) and California's Reactivity Science Advisory Committee. Previously he was on the EPA Office of Science, Technology and Policy's Oxygenated Fuels Program Review and various National Research Council program reviews, and a committee to review a Canadian NRC program. Dr. Russell is a member of the Air and Waste Management Association (AWMA), the American Association for the Advancement of Science (AAAS), the American Society of Mechanical Engineering (ASME), Tau Beta Pi, Sigma Xi, and the American Association for Aerosol Research (AAAR). He is Associate Editor of Environmental Science and Technology. Dr. Russell has won a variety of competitions for animations he has developed that depict the dynamics of pollutants have won a variety of prizes here and abroad, and his work was selected as a finalist for the prestigious Smithsonian Award for Computing in the Environmental Sciences. Recently, Professor Russell led a multi-institutional effort to conduct air quality modeling of ozone, particulate matter and acid deposition to assist the Southern Appalachians Mountains Initiative to identify effective control strategies to improve air quality in Class I areas in the southern Appalachians. This work has been extended to detailed analysis of air quality strategies in Georgia, particulate matter modeling in the Southeast and Northeast, and development of a number of advanced numerical techniques for environmental modeling. For his service to National Research Council committees, he was recently selected as a National Associate of the National Academies.

## **Sheppard, Elizabeth (Lianne)**

### **University of Washington**

Dr. Lianne Sheppard is a Research Professor in the Department of Biostatistics, and the Department of Occupational and Environmental Health Sciences. She holds a Ph.D. (1992) in Biostatistics from the University of Washington. Her scientific interests include estimating the health effects of occupational and environmental exposures, air pollution health effects, observational study design, and group information in observational studies. She is an active member of the EPA Northwest Center for Particulate Matter and Health, as well as a collaborator on several occupational and environmental health studies. Her statistical methods research addresses the role of exposure and study design in estimating health effects from observational studies. Dr. Sheppard currently serves as an expert panelist on EPA's Clean Air Scientific Advisory Committee (CASAC) Ozone Review Panel. In addition, she recently completed the project "Methods for Using Group Information in Epidemiology," an R29 grant funded by NIEHS. Dr. Sheppard is principal investigator on the sub-contract "Testing the Metals Hypothesis in Spokane" funded by the Mickey Leland Center, as well as PI on two sub-projects of the PM Center: "Statistics and Data Core," and "PM Statistical Methods." She is an external scientific reviewer for the Fresno Asthmatic Children's Environment Study based at University of California, Berkeley, and for the Environmental Lung Center at National Jewish in Denver.

## Speizer, Frank

### Harvard Medical School

Dr. Frank E. Speizer is currently Edward H. Kass Professor of Medicine at the Channing Laboratory of the Harvard Medical School, Boston, MA. From 1988 to 2005, he served as Co-Director of the Channing Laboratory. Dr. Speizer also holds hospital appointments as a senior physician in the Department of Medicine at Brigham and Women's Hospital, Boston; MA and as senior physician in the Department of Medicine at Beth Israel Deaconess Medical Center, Boston. Dr. Speizer received his Bachelor of Arts (A.B.) degree from Stanford University in 1957, and his Doctor of Medicine (M.D.) from the Stanford University Medical School in 1960. He also holds an honorary Master of Arts (A.M.) degree from Harvard University, which was awarded in 1989. Prior to his current appointment at the Channing Laboratory, Dr. Speizer served as Associate Professor of Epidemiology (Physiology) at the Harvard School of Public Health, Boston (1978-1986), and as Associate Professor of Medicine, Harvard Medical School (1978-1986). Since 1986, he has served as both Professor of Medicine at the Harvard Medical School and as Professor of Environmental Sciences at the Harvard School of Public Health. His major professional society involvement includes serving as a Member of the International Society for Infectious Diseases and the American Thoracic Society, National Asthma Research Committee; and as Associate Editor for Environmental Research. An epidemiologist, Dr. Speizer's major research interests are environmentally- and occupationally-related acute and chronic diseases; the natural history of chronic obstructive lung disease; and epidemiologic studies of risk factors for cancer, heart disease and diabetes. He is extensively published in his disciplinary field of expertise.

## Ultman, James

### Pennsylvania State University

Dr. James Ultman is a Distinguished Professor, Department of Chemical Engineering and Department of Bioengineering, and Chair, of the Intercollege Graduate Degree Program in Physiology, at the Pennsylvania State University. Dr. Ultman earned his B.S. in Chemical Engineering (1965) from the Illinois Institute of Technology; and earned his M.S. (1967) and Ph.D. (1969) in Chemical Engineering, from the University of Delaware. He was an NIH Postdoctoral at the University of Minnesota from 1969-70. Dr. Ultman's areas of expertise are: chemical engineering, biomedical engineering, respiratory physiology, the measurement and simulation of the respiratory dosimetry of ozone, and the quantification of ozone reaction with respiratory antioxidants. Dr. Ultman currently serves as an expert panelist on EPA's Clean Air Scientific Advisory Committee (CASAC) Ozone Review Panel. His most-recent prior service on advisory committees includes: (1) Scientific Advisory Committee, CIIT Centers for Health Research, Research Triangle Park, NC, (2001-2003); (2) NIEHS Superfund Hazardous Substances Basic Research Program: Study Section Member (1999); (3) EPA Scientific Review Panel: Air Quality Criterion for Ozone (1993); (4) EPA Scientific Review Panel: Research Needs for Ozone (1996); (5) EPA and Basic Acrylic Monomer Manufacturers Workshop: Nasal Dosimetry-Issues and Approaches (1998); (6) EPA and Health Canada Review Panel: Formaldehyde-Assessment for Carcinogenicity (1998); and (7) NIH PPG Scientific Advisor: Mechanism of Heterogeneity in the Lungs, University of Washington (1998-present). Dr. Ultman's sources of recent grant and/or other contract support funding include: (1) "Distribution of Chlorine in Intact Human Lungs" (grant title), Chlorine Institute, 1996-1998 (Sponsor/Dates); (2) "Ozone Exposure and Dose Delivered to Human Lungs," National Institutes of Health (NIH), 1998-2003; (3) "Distribution of Ozone in Intact Human Lungs: Effect of Intersubject Variability," Health Effects Institute, 1999-2001; and (4) "Mechanism of Species-Dependent Lung Injury," NIH, 2003-2006.

## **Vedal, Sverre**

### **University of Washington**

Dr. Sverre Vedal is currently Professor in the Department of Environmental and Occupational Health Sciences, Division of Occupational and Environmental Medicine, at the University of Washington School of Public Health and Community Medicine. Dr. Vedal is a pulmonary physician and an epidemiologist. He received his Doctor of Medicine degree from the University of Colorado and his Master of Science (M.Sc.) degree in epidemiology from the Harvard University School of Public Health. He worked for 18 years as an academic pulmonologist at the University of British Columbia in Vancouver, and then 3 years at the National Jewish Medical and Research Center in Denver, Colorado before joining the faculty at the University of Washington in 2004. Dr. Vedal was a member of the EPA Science Advisory Board's Clean Air Scientific Advisory Committee (CASAC) until 2003 and then served on the CASAC Particulate Matter Review Panel until 2006. He now serves on the CASAC Ozone Review Panel. Dr. Vedal serves as a standing member of the Review Committee of the Health Effects Institute (HEI) and chaired the review committee for the HEI-funded National Morbidity, Mortality, and Air Pollution Study (NMMAPS) and the HEI committee that reviewed the revised time series analyses of EPA selected studies. He served as a member of the Air Quality Management in the U.S. Committee of the National Research Council and now serves on the Institute of Medicine Committee on Evaluation of the Veterans Administration's Presumptive Disability Decision-Making Process. Dr. Vedal's research interests are in the health effects of air pollution and in occupational lung disease. He is currently working on incorporating source-oriented approaches to specifying exposure to ambient air pollution in epidemiological studies, and on identifying effects of long-term exposure to components and sources of particulate matter on cardiovascular disease.

## **Zidek, James (Jim)**

### **University of British Columbia**

Dr. Jim Zidek is a Professor of Statistics, in the Department of Statistics, at the University of British Columbia. His areas of expertise include: environmetrics; mapping spatial pollution fields; designing environmental monitoring networks; environmental health risk analysis. Dr. Zidek received his B.Sc. (with honors) and M.Sc. from the University of Alberta in 1961 and 1963, respectively. He was awarded his Ph.D. from Stanford University in 1967. Selected distinctions for Dr. Zidek include: Fellowships for the American Statistical Association and the Institute of Mathematical Statistics; the Izaak Walton Killam Senior Fellowship, 1989/90, and the Izaak Walton Killam Research Prize, 2001; the Distinguished Achievement Medal, Environmental Statistics Section of the American Statistical Association, 2000; and the Gold Medal, Statistical Society of Canada, 2000. He is also an Elected Fellow, Royal Society of Canada, 2003. Dr. Zidek's leadership positions include: founding Head of Statistics (1984-89); Head of Statistics (1997-2002); President, Statistical Society of Canada (1988); Chair, Statistical Sciences Grant Selection Committee; NSERC, (1980); Mathematical Sciences Group Chair, NSERC (1988-91); Editor, Statistical Science, 1987-92; Editor, CRC/Chapman Hall, 1998-present; and Editor, Encyclopedia of Environmetrics, 1999-present. Since 1999, he has served on the advisory committee for EPA's Northwest Research Center for Particulate Air Pollution and Health, at the University of Washington. He also served on the Methodological Advisory Committee, Statistics Canada, from 1985 to 1987, and from 1991 to 1994; and on the Councils, Institute of Mathematical Statistics (1996-99) and International Society of Bayesian Statistics (1996-98). Dr. Zidek's recent sources of grant and other contract support include: (1) ManTech Corp., Interpolating PM2.5 fields, \$35,000, 00/01; (2) NSER Canada, Likelihood theory and spatial mapping, \$30,000 p.a., 2002-2006; and EPSRC of the UK, Predicting personal exposure to PM10, 5000 pounds, 2002.

## **Zielinska, Barbara**

### **Desert Research Institute**

Dr. Barbara Zielinska currently holds the position as Research Professor and Director of the Organic Analytical Laboratory at the Division of Atmospheric Sciences of the Desert Research Institute (DRI) in Reno, Nevada. The DRI is an autonomous research division of the University and Community College System of Nevada (UCCSN). DRI was created in 1959 by a special act of the Nevada State Legislature. Under the act and subsequent actions of the University Board of Regents, DRI is charged with conducting basic and applied research in environmental science. Dr. Zielinska has been active in the air pollution field for more than 20 years and specializes in the analysis of organic compounds in ambient air and in emission sources. Her list of publications includes over 80 papers concerning the analysis of ambient and source samples for polycyclic organic hydrocarbons (PAH), nitro-PAH and other toxic air pollutants. Dr. Zielinska received her M.Sc. degree from the Lodz University of Technology, Poland, and her Ph.D. degree from the Polish Academy of Sciences, both in Chemistry.