Invitation for Comment on the EPA Science Advisory Board "Short List" Candidates to Augment the Expertise of the Radiation Advisory Committee (RAC) for the Radiogenic Cancer Risk Assessments
September 8, 2008

The EPA Science Advisory Board (SAB) Staff Office is forming a Panel to review the EPA draft document under development entitled *EPA Radiation Risk Estimates Based on BEIR VII, dated 2008.* Nominations for technical experts to augment the SAB Radiation Advisory Committee (RAC) were requested in the *Federal Register* (73FR 21129) on April 18, 2008. The notice provided background information on the upcoming review, including background documents related to the topic, the general nature of the advice to be conveyed, the process for submitting nominations, and expertise needed for consideration as a candidate for the *Ad Hoc* Panel. Biosketches of the members of the RAC, along with biosketches of the prospective candidates for the "short list" are provided in this listing. As requested in the *FR* notice cited above, the SAB sought nominations of nationally and internationally recognized experts with specialized expertise and experience in radiogenic cancer risk in one or more of the following areas:

- Radiobiology,
- Radiation biophysics,
- Cancer epidemiology related to radiation,
- Radiation exposure and uptake, and
- High-to-low dose extrapolation for linear-energy-transfer (LET) radiation.

Based on qualifications, interest and availability of the nominees, the SAB Staff Office has identified 16 candidates who have relevant expertise to augment the expertise of the RAC members. Brief biographical sketches ("biosketches") on these expert candidates, along with biosketches of the RAC members, are provided below. We hereby invite comments from members of the public for relevant information, analysis or other documentation that the SAB Staff Office should consider in evaluating these candidates.

The SAB Staff Office Director will make the final decision about who serves on the augmented RAC review panel based on all relevant information. This includes a review of the member's confidential financial disclosure form (EPA Form 3110-48) and an evaluation of a lack of impartiality. For the EPA SAB Staff Office, a balanced committee or panel is characterized by inclusion of candidates who possess the necessary domains of knowledge, the relevant scientific perspectives (which among other factors, can be influenced by work history and affiliation), and the collective breadth of experience to adequately address the general charge. Specific criteria to be used in evaluating the individual panel member include technical expertise, knowledge and experience, absence of financial conflicts, scientific credibility and impartiality, availability and willingness to serve, and for the panel, diversity of and balance among, scientific expertise and viewpoints.

Please e-mail your comments no later than September 30, 2008 to Dr. K. Jack Kooyoomjian, Designated Federal Officer, Radiation Advisory Committee (RAC) at: kooyoomjian.jack@epa.gov.

Dr. Susan M. Bailey:

Dr. Susan M. Bailey is an Associate Professor in the Department of Environmental & Radiological Health Sciences at Colorado State University (CSU) and is also a member of the University of Colorado Cancer Center, the CSU Animal Cancer Center and the Center on Aging. She holds a B.S., M.S. and Ph.D. in Biological Sciences. Her research interests revolve around the interplay between repair of broken DNA ends and the preservation of natural telomeric DNA ends, and how failure of either contributes to carcinogenesis. Dr. Bailey's research expertise includes use of specialized molecular cytogenetic techniques, such as Fluorescence in situ Hybridization (FISH), and Chromosome Orientation (CO-FISH) and combinational multi-fluor FISH (m-FISH and SKY). She uses these tools to explore the involvement of telomere dysfunction and chromosomal rearrangements in the process of generating genomic instability following exposure to ionizing radiation, searching for novel cancer genes and new therapeutic targets.

Dr. Thomas B. Borak:

Dr. Thomas B. Borak, Ph.D., is a professor in the academic faculty of the Department of Environmental and Radiological Health Sciences at Colorado State University. He is currently a member of the SAB/RAC. He received a Bachelor of Science Degree in physics from St. John's University (Minnesota) and a Ph.D. degree in physics from Vanderbilt University. His research interests are in radiation physics and dosimetry. Previously he has held scientific staff appointments at Fermilab, CERN (originally known as Conseil Europe´en pour la Resherche Nucle´aire, the European Council for Nuclear Research, and currently referred to as the European Organization for Nuclear Research), and Argonne National Laboratory. He is a member of the American Physical Society, Radiation Research Society and Health Physics Society where he recently served on the Board of Directors. Dr. Borak is currently serving on the National Council on Radiation Protection and Measurements (NCRP) and is certified by the American Board of Health Physics. He has been a consultant to the Governor of Colorado concerning issues relating to low-level radioactive waste management and nuclear criticality safety. Dr. Borak served on committees for the National Academy of Sciences (NAS) on Risk Assessment of Exposure to Radon in Drinking Water and Assessment of the Scientific Information for the Radiation Exposure Screening and Education Program. Recent grant and contract activities have included a National Aeronautics and Space Administration (NASA) Specialized Center for Research and Training (NSCORT) in Radiological Health and a consortium sponsored by the National Science Foundation (NSF) to prepare a conceptual design report for a Deep Underground Laboratory for Science and Engineering (DUSEL) at the Henderson Mine site in Colorado.

Dr. Patricia A. Buffler:

Dr. Patricia A. Buffler is Dean Emerita of the School of Public Health at the University of California, Berkeley, having served as Dean from 1991 to 1998, and has been a Professor since 1991. She was appointed to the Kenneth and Marjorie Kaiser Endowed Chair and her current research interests in cancer epidemiology include studies of leukemia and brain tumors in children, health effects of environmental second-hand tobacco smoke and health effects of non-ionizing radiation. She received her BSN in Nursing and Biology from Catholic University of America in 1960, and a MPH in Public Health Administration and Epidemiology in 1965, and a Ph.D. in Epidemiology in 1973 from the University of California, Berkeley. Dr. Buffler has also served as the principal or co-principal investigator for over three dozen research activities including research activities supported by the National Institutes of Health (NIH) Toxic Substances in the Environment Research Program and the NIH Studies of Molecular Epidemiology of Childhood Leukemia and Environmental Exposures and Leukemia.

Dr. Buffler was elected a fellow of the American Association for the Advancement of Science (AAAS) in 1992 and served as an officer for the Medical Sciences Section from 1994-2000. She is a Fellow of the American College of Epidemiology, and has served as President for the Society for Epidemiological Research (1986), the American College of Epidemiology (1992), and the International Society for Environmental Epidemiology (1992-1993). In 1994 she was elected to the Institute of Medicine, National Academy of Sciences (IM/NAS). Dr. Buffler served on the U.S. Environmental Protection Agency (EPA) Science Advisory Board (SAB) Radiation Advisory Committee's (RAC) Nonionizing Electric and Magnetic Fields (EMF) Subcommittee in 1991-1992. Dr. Buffler has served on several editorial boards. In addition to memberships in scientific societies and professional organizations, she has served on numerous national and international advisory groups as director or member of several boards, including the U.S.-Japan Radiation Effects Research Foundation (RERF), the National Urban Air Toxics Research Center, the Lovelace Respiratory Research Institute, the FMC Corporation and the National Council on Radiation Protection and Measurements (NCRP). She has also served as an advisor to the World Health Organization (WHO), the NIH, the U.S. Public Health Service Centers for Disease Control and Prevention (U.S. PHS/CDC) the U.S. Environmental Protection Agency (U.S. EPA), the U.S. Department of Energy (U.S. DOE), the U.S. Department of Defense (U.S. DoD), and the National Academy of Sciences/National Research Council (NAS/NRC), including recent service as a member of the NAS BEIR VII Committee.

Dr. Faith G. Davis:

Dr. Faith Davis is Senior Associate Dean and Director of Graduate Studies in the Office of the Dean, School of Public Health and Professor of Epidemiology and Biostatistics at the University of Illinois at Chicago, where she had been a member of that faculty since 1984. She is currently a member of the SAB/RAC. She received her B.Sc. Degree from the University of Alberta in Edmonton, Canada. She attended the Kennedy School of Government, the School of Public Health at Harvard University, where she received her Masters degrees in Public Administration and Public Health, Columbia University where she received her Master's Degree in Public

Health, and the Yale School of Public Health where she received her Ph.D. in chronic disease epidemiology. Her research interests focus on cancer epidemiology, particularly brain tumors and radiation exposures. Dr. Davis has over two decades of experience in conducting epidemiology research and has devoted administrative efforts towards developing an infrastructure to conduct population based studies in the Chicago area. She has served on local, regional and national review and advisory committees and is currently a member of the National Council for Radiation Protection and Measurements (NCRP) subcommittee on biological effects of radiofrequency electromagnetic fields and a member of the Progress Review Group convened by NCI and NINDS for brain tumors. She is on the editorial boards for Neuro-Oncology and the Journal of Registry Management. Dr. Davis conducted work with the Central Brain Tumor Registry of the U.S., which culminated in a recent change of legislation regarding how brain tumor data will be collected in U.S. surveillance systems in the future.

Dr. Robert G. Dixon, M.D.:

Dr. Robert G. Dixon, MD is currently Assistant Professor of Radiology (2004 to the present) in the Department of Radiology, at the University of North Carolina School of Medicine in Chapel Hill, NC. He was Clinical Assistant Professor of Emergency Medicine at the State University of New York in Syracuse, NY, after completing an Emergency Medicine residency. He also served as Chief Resident during his radiology residency at the State University of New York in Syracuse. His B.A. is in Philosophy with a minor in Biology at the State University of New York in Genesco, NY. He is a author of a book chapter in Image-Guided Interventions, published in 2008. He has been involved as an author or co-author in at least six articles in refereed journals, and has a couple of dozen book reviews, abstracts and presentations, as well as invited lectures and seminars. He recently co-authored a web-based module on Radiation Dose and Safety in Interventional Radiology which was a collaborative effort between the Radiological Society of North America and the American Association of Physicists in Medicine. Dr. Dixon's practice in interventional radiology involves vascular and non-vascular image guided interventions, with a focus on oncologic interventions such as radiofrequency ablation, chemoembolization, radioembolization and cryoablation. Dr. Dixon is a member of the Society of Interventional Radiology, and is a member of the Safety Committee from 2007 to the present. He is a manuscript reviewer for the Journal of Interventional Radiology, and is a member of a number of professional societies, including the International Society for Magnetic Resonance in Medicine, the American Roentgen Ray Society, the Society of Interventional Radiology, the American College of Radiology, the Radiological Society of North America, and the American College of Emergency Physicians.

Dr. Brian Dodd:

Dr. Brian Dodd is an independent consultant and Principal of BDConsulting in Las Vegas, Nevada. He currently is a member of the SAB/RAC. He previously served as Head of the International Atomic Energy Agency's Radiation Source Safety and Security Unit, managing the IAEA's efforts in dealing with orphan sources and the potential use of radioactive sources for

radiological terrorism until 2004. Prior to joining the IAEA he was at Oregon State University for 20 years, most recently as the Director of its Radiation Center a well as a Professor of Health Physics and Nuclear Engineering. Dr. Dodd has been involved with the Health Physics Society (HPS) for many years, including terms of office on the Board of Directors and as treasurer. He served as President of the HPS (2006-7) as well as Treasurer of the International Radiation Protection Association. His fields of expertise include safety and security of radioactive sources, transportation of radioactive material, emergency response, training and research reactors. Dr. Dodd has authored or co-authored a number of IAEA/UN publications on security of radioactive sources, safe transport of radioactive materials, management of radiation protection, quality aspects of research reactor operations and related topics. He has authored or co-authored over 100 publications in technical journals, conference proceedings, reports and others dealing broadly with the above topics. Dr. Dodd has a B.S. in Nuclear Engineering and Ph.D. in Reactor Physics from Queen Mary College, London University.

Dr. R. William Field:

Dr. R. William Field is a Professor with joint appointments in the Department of Occupational and Environmental Health and Department of Epidemiology within the College of Public Health at the University of Iowa. He also directs the National Institutes of Occupational Safety and Health's (NIOSH) funded occupational epidemiology training program at the University of Iowa. He received his Ph.D. in Preventive Medicine and Environmental Health from the College of Medicine at University of Iowa and prior to entering the academic ranks worked as a Health Physicist at the University of California, Berkeley. Dr. Field has received numerous honors and awards for his work including the U.S. Environmental Protection Agency's (EPA)/National Environmental Health Association's (NEHA) Individual Achievement Award for Excellence in Radon Risk Reduction, the EPA's Children's Environmental Health Recognition Award, as well as other honorary society, professional association, and university awards. Previous service includes activities with the National Academy of Sciences (NAS), the World Health Organization (WHO), several scientific journal editorial boards, and numerous national and international organizations. Dr. Field's research focuses on methods to improve retrospective dose assessment for epidemiologic studies, health effects of particulate exposure, biomonitoring, radiation epidemiology, environmental epidemiology, cancer epidemiology, and risk perception. He is currently overseeing several large-scale occupational cohort studies involving munitions workers and nuclear bomb assemblers as well as pooled case-control analyses examining the health effects of prolonged radon decay product exposure.

Dr. Shirley A. Fry:

Dr. Shirley A. Fry is an independent consultant in radiation health effects. She is currently a member of the SAB/RAC. She holds a medical degree from the University of Dublin, Trinity College, Ireland, and a master's degree in epidemiology in the School of Public Health, University of North Carolina, Chapel Hill. She was on the staff of the Medical Sciences Division (MSD) of Oak Ridge Associated Universities (ORAU) from 1978 until her retirement

in 1995. At ORAU she was member of MSD's Radiation Emergency Assistance Center/Training Site's (REAC/TS) clinical staff, teaching faculty and response team (1978-1995); director of its Center for Epidemiologic Research (1984-1991) and its assistant director (1991-1995). Subsequently she was a member of the Scientific Advisory Council and later the scientific director of the International Consortium for Radiation Health Effects Research, a Washington, DC.-based consortium of research groups at academic institutions in the US, Belarus, Russian Federation and Ukraine established to conduct collaborative epidemiological studies among groups potentially exposed to radiation as the result of the 1986 Chernobyl reactor accident. She continued a part-time association with ORAU until November 2005. Her areas of scientific interest are in the acute and chronic health effects of radiation, specifically in the long term follow-up of individuals and populations previously accidentally exposed or at risk of occupational exposure to radiation, including workers employed by US Department of Energy, its predecessor agencies and their contractors, and in the US radium dial painting industry. Dr. Fry is the author or co-author of a number of publications on topics relating to these groups. She has served on national and international committees concerned with radiation health effects, including the Institute of Medicine' Medical Follow-up Agency (IOM/MFUA's) Committee on Battlefield Exposure Criteria and the National Academies of Sciences/National Research Council 's Board of Radiation Effects Research (NAS/NRC's BEAR) Committee on the Assessment of the Scientific Information for the Radiation Exposure, Screening and Education Program, the Health Studies Group of the US/USSR Joint Commission on Chernobyl Nuclear Reactor Safety and the International Agency for Research on Cancer's International Study Group on Cancer Risk Among Nuclear Workers.

Dr. Ethel S. Gilbert:

Dr. Ethel S. Gilbert is currently employed as an Expert in radiation within the Radiation and Epidemiology Branch of the National Cancer Institute (NCI) in the National Institutes of Health (NIH). Her research interests include evaluating carcinogenic risk from exposure to plutonium and risks from protracted external exposure in workers at the Mayak nuclear facility in the Russian Federation. Her research interests also include developing risk models for estimating the carcinogenic risk from exposure to radiation, and analyzing data from both case-control and cohort studies of second cancers after radiotherapy and chemotherapy. Dr. Gilbert received a B.A. in Mathematics from Oberlin College and an M.P.H. and Ph.D. in Biostatistics from the University of Michigan. She spent several years as a senior staff scientist at Battelle Pacific Northwest National Laboratory, where her research focused on epidemiologic studies of nuclear workers and on analyzing data from experimental animal studies, and also spent a year at the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan. Dr. Gilbert joined the National Cancer Institute (NCI) at the National Institutes of Health (NIH) in 1996 as an Expert. She received the NIH Merit Award in 2003 for research in several areas. Her current research includes studies of workers at the Mayak nuclear plant in Russia and studies of second cancers after radio-and chemotherapy. Dr. Gilbert served on the BEIR VI Committee on Health Risks for Exposure to Radon and on the BEIR VII Committee on Health Risks from Exposure to Low Levels of Ionizing Radiation. She was also a member of the NCI-CDC working group responsible for revising the 1985 NIH Radioepidemiological Tables. Dr. Gilbert is a fellow of

the American Statistical Association (ASA) and an honorary member of the National Council on Radiation Protection and Measurements (NCRP).

Dr. Robert L. Goble:

Dr. Robert L. Goble is Research Professor of Environmental Science and Policy and Director of the George Perkins Marsh Institute at Clark University. He has a B.A. in Physics from Swarthmore College and a Ph.D. in High Energy Physics from the University of Wisconsin. For the past 30 years his research has focused on health and environmental hazards and on studies of energy technologies. That work includes studies of radiation dosimetry and radiation dose response modeling; atmospheric transport and transformation of pollutants including radiological pollutants; studies of uncertainties in the use of modeling in human physiological systems and for atmospheric transport, including models for nuclear accident consequences. He has contributed data compilations and analysis to include consideration of inter-individual differences in susceptibility to toxins as an aspect of risk assessment and risk management. A particular concern has been examining age-related differences in susceptibility. In parallel with his technical research he has devoted significant time to working with communities and community groups that have concerns about their local exposure to environmental toxins including radiological exposures. In particular, Dr. Goble has worked with various Federal agencies, specifically the National Science Foundation (NSF), the Environmental Protection Agency (EPA), and the Department of Energy (DOE). He has also worked with international and state government agencies such as the World Health Organization (WHO) and the California Public Health Fund, as well as various citizen organizations including the Citizens Monitoring and Technical Assistance Fund.

Dr. William C. Griffith:

Dr. William C. Griffith currently is Associate Director of the Institute for Risk Analysis and Risk Communication in the Department of Environmental and Occupational Health Sciences at the University of Washington in Seattle, Washington. He currently is a member of the SAB/RAC. He was trained as a biostatistician and has collaborated for over three decades in studies of the dosimetry and health effects of radiation and other toxicants. His work has included design, data collection and analysis of laboratory and field based studies. In particular he has extensive experience in estimation of doses from internally deposited radionuclides and estimation of dose response in terms of age specific incidence rates and prevalence. He has also been active in translating his experience into models that are useful for health protection through participation in committees of the National Council for Radiation Protection and Measurements (NCRP). More recently he has analyzed how these models are applied in environmental cleanup of the Department of Energy's Hanford site, and he has worked extensively with committees of the Hanford Advisory Board. He has been involved with the Department of Energy's Low Dose Radiation Program to translate laboratory results into mathematical models that will be useful for future regulation of radiation. Dr. Griffith also has experience in the study of non-radioactive toxicants. He was part of the team at the Lovelace Inhalation Toxicology Research Institute that

was the first to prove that diesel exhausts are pulmonary carcinogens in laboratory animals. At the University of Washington he has been Director of the Risk Characterization Core for the Child Health Center funded by the Environmental Protection Agency and the National Institute of Environmental Health Science. As director he has designed and developed statistical methods for analysis of a community based randomized intervention to test the effectiveness of educating farm workers about how they can decrease the accidental exposures of their children from pesticides they bring home on their clothes. Dr. Griffith has also collaborated with EPA Region 10 by lecturing frequently on how to apply statistical methods to superfund cleanup decisions. He has organized 8 workshops on the application of new genomic and proteonomic methods in collaboration with EPA-ORD for EPA regions, state and tribal environmental offices.

Dr. Peter G. Groer:

Dr. Peter G. Groer is Professor Emeritus of Nuclear Engineering at the University of Tennessee's Department of Nuclear Engineering. His research interests include Bayesian methods for radiation risk and reliability analysis and for external and internal radiation dosimetry. He received his Ph.D. in Theoretical Physics (with a Mathematics Minor) from the University of Vienna in Austria. Prior to his position at the University of Tennessee, Dr. Groer served as Senior Scientist at Oak Ridge Associated Universities, in Oak Ridge, Tennessee. Before moving to Oak Ridge he worked as a Biophysicist in the Radiological Physics Division of Argonne National Laboratory after serving as a research staff member and Instructor in the Physics Department at the Massachusetts Institute of Technology. He was a visiting scientist at the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan (1980-81), and a visiting senior scientist at the Japanese Atomic Research Institute (JAERI) in Tokaimura, Japan (1996).

Dr. Groer is or has been a member of numerous professional and honorary organizations, and served on numerous specialty committees and subcommittees, including the Radiation Research Society, the Health Physics Society, the American Mathematical Society, American Mathematical Association, the National Council on Radiation Protection and Measurements (NCRP), and the Society for Risk Analysis. He is a founder of the Society for Risk Analysis and served on the Editorial Board for *Risk Analysis*, an international peer-reviewed journal. He was a member of the National Academy of Sciences (NAS) Board on Radiation Effects Research Committee to review the Radioepidemiologic Tables (2000) and of the BEIR IV Committee on Health Risks of Internally Deposited Alpha Emitters (1985-1987). He also served as a member of the National Cancer Institute's (NCI) Working Group on Cytogenic Procedures to Detect and Quantify Previous Exposures to Radiation (1986-1987). He was a consultant for the United Nations Scientific Committee on the Effects of Ionizing Radiations (UNSCEAR), for the Los Alamos National Laboratory on Bayesian Methods for internal radiation dosimetry (2004) and for Oak Ridge Associated Universities on Bayesian Methods for Dose Reconstruction (2005-2006). He has authored or co-authored over 80 publications dealing with the above broad research areas.

Dr. Helen Ann Grogan:

Dr. Helen Ann Grogan is an independent consultant and President of Cascade Scientific. She holds a Bachelor of Science Degree in Botany with honors from Imperial College of Science and Technology at the University of London, and a Ph.D. from that same university. Dr. Helen Ann Grogan is a former member of the SAB's Radiation Advisory Committee (RAC) and has served on committees for the National Academy of Sciences (NAS) and the National Council on Radiation Protection and Measurements (NCRP). She co-edited the text book Radiological Risk Assessment and Environmental Analysis published by Oxford University Press in July 2008, and authored the chapter on Model Validation. She has worked on a variety of projects as a subcontractor to Risk Assessment Corporation (RAC), including an independent assessment of the risks to the public from the 2002 Cerro Grande Fire for the New Mexico Environment Department, development of a risk-based screening for historical radionuclide releases to the Columbia River from the Hanford Nuclear Facility in Washington under contract to the Centers for Disease Control and Prevention (CDC), and two dose reconstruction projects (Rocky Flats near Denver, CO and Savannah River in So. Carolina). Her work for the Rocky Flats site emphasized quantifying cancer risk and its uncertainty following exposure to plutonium from inhalation and ingestion.

Dr. Grogan is currently working to develop a process and tools that can be used to guide the efforts to reduce public health risk from radionuclides and chemicals originating at the Los Alamos National Laboratory. Dr. Grogan is a tutor for the School of Underground Waste Storage and Disposal at their course on Geologic Disposal of High Level Waste. Dr. Grogan has assisted in the development of an International Features, Events and Processes (FEP) database for the Nuclear Energy Agency Organization for Economic Cooperation and Development in France to be used in the performance assessment of radioactive waste disposal systems and was involved with the Swiss National Cooperative for the Disposal of Radioactive Waste (Nagra), specifically in modeling the biosphere for repository performance assessment. She was actively involved in the early international cooperative efforts to test models designed to quantify the transfer and accumulation of radionuclides and other trace substances in the environment. She has authored or co-authored several dozen publications, and technical reports dealing with the role of microbiology modeling the geological containment of radioactive wastes, plant uptake of radionuclides, long-term radioactive waste disposal assessment, modeling of radionuclides and chemicals in the biosphere, evaluation of risk coefficients for plutonium inhalation, and related topics.

Dr. David G. Hoel:

Dr. David G. Hoel is Distinguished University Professor of Biometry and Epidemiology in the College of Medicine at the Medical University of South Carolina in Charleston and Clinical Professor of Radiology at the USC Medical School in Columbia. He received an A.B. in mathematics and statistics from University of California at Berkeley in 1961, a PhD in mathematical statistics from University of North Carolina in Chapel Hill in 1966 and was a post-doctoral fellow in preventive medicine at Stanford University. Prior to joining the Medical

University of South Carolina Dr. Hoel was Division Director for Risk Assessment at the NIEHS in N.C. Dr. Hoel is a Fellow of the AAAS, a member of the Institute of Medicine of the NAS and a National Associate of the National Academies. His awards include the Spiegleman Gold Medal in Public Health and the Ramazzini Award in Environmental and Occupational Health. He has served on numerous governmental committees including the EHC and RAC of EPA's Science Advisory Board and the BEIR V committee of the National Academy of Sciences. Dr. Hoel's research has focused on risk assessment methods with particular interest in low-dose radiation exposures and cancer. This work has included stays in Hiroshima as a Director at Radiation Effects Research Foundation and currently is a RERF Scientific Counselor. This year he became a member of National Academies' Board on Nuclear and Radiation Studies.

Dr. Richard W. Hornung :

Dr. Richard W. Hornung, DrPH, is Director of Biostatistics and Data Management of Cincinnati Children's Hospital Medical Center, Division of General and Community Pediatrics in 2005. He served on the EPA's Science Advisory Board (SAB) as a member of the Radiation Advisory Committee (RAC). He was Senior Research Associate and Director of the Division of Biostatistical Research and Support in the Institute for Health Policy and Health Services Research at the University of Cincinnati Medical Center from 1998-2005. He has served in 1996 as a member of the White House Committee on Revisions to the Radiation Exposure Compensation Act. Since 1990, he has served as an advisor on the National Research Council. He received numerous awards, including the U.S. Public Health Service (PHS) award for "Sustained High Level Performance in the Field of Biostatistics." He was a consultant to the National Academy of Science (NAS) Committee on the Biological Effects of Ionizing Radiation (BEIR IV). He is a reviewer for over 20 scientific journals. His peer-reviewed publications deal with exposure assessment methods, lung cancer risk in Uranium miners, dose assessments, dose reconstruction, development of models for use in estimating exposures to a number of pollutants, including radon, diesel exhaust, benzene, ethylene oxide, and arsenic, among others. In the area of radiation research, he is currently involved with the University of Kentucky to serve as the scientific director of an occupational epi study of workers at the Paducah Gaseous Diffusion Plant. He is also involved with the National Institute for Occupational Safety and Health (NIOSH) as the biostatistician on a study of radiation related cancers among residents living near the Fernald plant in Southwestern Ohio. Dr. Hornung has a B.S. in Mathematics from the University of Dayton, an M.S. in Statistics from the University of Kentucky, and a DrPH in Biostatistics from the University of North Carolina.

Dr. Bernd Kahn:

Dr. Kahn is Head of the Environmental Radiation Center since 1974 (formerly the Environmental Resources Center) and now Professor Emeritus of the Nuclear and Radiological Engineering and Health Physics Programs at Georgia Institute of Technology (GIT). Dr. Kahn currently serves as Chairman of the U.S. EPA SAB's Radiation Advisory Committee (RAC). He received his B.S. in Chemical Engineering from Newark College of Engineering (Now New

Jersey Institute of Technology), M.S. in Physics from Vanderbilt University and Ph.D. in Chemistry from the Massachusetts Institute of Technology. He was Adjunct Professor of Nuclear Engineering at the University of Cincinnati (1970-1974), Chief of the Radiological & Nuclear Engineering Facility at the U.S. EPA's National Environmental Research Center (1970-1974), undertaking research in environmental, medical, and biological radiological programs, including studies of radioactive fallout in food, radionuclide metabolism in laboratory animals, and SR-90 balances in human infants; an Engineer/Radiochemist with the U.S. Public Health Service (1954-1970), evaluating the treatment of low-and intermediate-level radioactive wastes; and a Health Physicist and Radiochemist with Union Carbide Corporation (1951-1954).

Dr. Kahn has served on a number of distinguished committees, panels and commissions, including the National Research Council (NRC) committees on decontamination and decommissioning of uranium enrichment facilities, buried transuranium waste, single shell tank wastes, Panel on Sources and Control Technologies, Committee on Nuclear Science, and Subcommittee on the Use of Radioactivity Standards. He has served on the National Council on Radiation Protection and Measurements (NCRP) Scientific Committees as Chair of the Scientific Committee 64-22 for Effluent and Environmental Monitoring, Chair of the Task Group 5 on Public Exposure from Nuclear Power, member of the Scientific Committee 84 on Radionuclide Contamination, member of the Scientific Committee 64 on Environmental Issues, member of the Scientific Committee 63-1 on Public Knowledge About Radiation Accidents, member of the Scientific Committee38 on Accident-Generated Waste Water, member of the Scientific Committee 18A on Radioactivity Measurement Procedures, and member of the Scientific Committee 35 on Environmental Radiation Measurements.

Dr. Kahn is widely published with over 160 publications on the topics of radiation measurements, monitoring and protocols, fate of radionuclide discharges, critical pathways for radiation and population exposure, radiochemical analyses for environmental studies, airborne radiation in buildings , emergency response to accidents involving radioactive materials, airborne fallout, sources, fate and occurrences and health effects of radionuclides in the environment, surveillance of radionuclides in the food chain, integrated environmental measurement, germanium detectors and other devices, decommissioning procedures and radiation-related topics.

Dr. Michael T. Kleinman:

Dr. Michael T. Kleinman is currently a Professor of Occupational and Environmental Medicine in the Department of Medicine at the University of California, Irvine (UCI) since 1982. He was previously employed by the US Atomic Energy Commission (AEC) as an environmental scientist and he directed the Aerosol Exposure and Analytical Laboratory at Rancho Los Amigos Hospital in Downey, CA. He is a toxicologist and has been studying the health effects of exposures to environmental contaminants 40 years. He holds a MS in Chemistry (Biochemistry) from the Polytechnic Institute of Brooklyn and a Ph.D. in Environmental Health Sciences from New York University. He is also the Co-Director of the Air Pollution Health Effects Laboratory

in the Department of Medicine at University of California, Irvine and a member of the UCI Radiation Safety Committee. He has published more than 100 articles in peer-reviewed journals dealing with environmental contaminants and their effects on cardiopulmonary and immunological systems and on global and regional distribution of environmental contaminants including heavy metals and radioactive contaminants from nuclear weapons testing and manufacture. He has directed more than 50 controlled exposure studies of human volunteers and laboratory animals to ozone and other photochemical oxidants, carbon monoxide, ambient particulate matter and laboratory-generated aerosols containing chemically or biologically reactive metals such as lead, cadmium, iron and manganese. He recently served on two National Academy committees to examine issues in protecting deployed US Forces from the effects of chemical and biological weapons. Dr. Kleinman's current research focuses on neurological and cardiopulmonary effects of inhaled particles, including nanomaterials and ultrafine, fine and coarse ambient particles in humans and laboratory animals. His studies use radioactive and fluorescent tracers to measure kinetics of uptake, distribution and retention of inhaled contaminants. His recent health effects studies have demonstrated that inhalation of combustion-generated particles can promote airway allergies and accelerate the development of cardiovascular disease and that these effects may be associated with organic and elemental carbon components of the ultrafine fraction of the ambient aerosol. His studies have also demonstrated that inhalation of ambient particles is associated with persistent inflammation in the brain and that particles associated with manganese can alter dopamine and serotonin levels in the brain and can cause changes in nerve structure during brain development. Dr. Kleinman has previously served on the U.S. EPA Science Advisory Board' Clean Air Scientific Advisory Committee (CASAC) Ozone panel and currently serves as the Chair of the California Air Quality Advisory Committee.

Dr. Charles E. Land:

Dr. Charles E. Land is a Senior Investigator with the Radiation Epidemiology Branch, Division of Epidemiology and Genetics, National Cancer Institute (NCI), in Bethesda, MD. Before joining the NCI in 1975, he worked at the Atomic Bomb Casualty Commission (now the Radiation Effects Research Foundation, RERF) in Hiroshima, Japan, and taught statistics at Oregon State University. He was awarded a BA in Psychology at the University of Oregon in 1959, and a PhD degree in Statistics from the University of Chicago in 1968. Dr. Land's research interests are focused on epidemiological studies of cancer risk associated with exposure to ionizing radiation, the role of statistical and subjective uncertainty in our understanding of radiation-related risks, and their implications for radiation protection policy. He has served on a number of expert committees of the National Institutes of Health (NIH), the NCI, and the National Academy of Sciences (NAS) related to radiation-related cancer risk. He was elected to membership in the National Council on Radiation Protection and Measurements (NCRP) in 1981, became a Distinguished Emeritus Member in 2005, and presently serves on NCRP Program Area Committee 1, on Basic Criteria, Epidemiology, Radiobiology, and Risk. From 1985 to 2005 he served on Committee 1, on Risk, of the International Commission on Radiological Protection (ICRP). He has authored or co-authored some 175 scientific publications.

Dr. Jonathan M. Links:

Dr. Jonathan M. Links is Professor of Environmental Health Sciences at the Johns Hopkins Bloomberg School of Public Health, with joint appointments in Radiology and Emergency Medicine at the Johns Hopkins School of Medicine. He is currently a member of the SAB/RAC. He is a medical physicist, with a B.A. in Medical Physics from the University of California, Berkeley, and a Ph.D. in Environmental Health Sciences (with a concentration in Radiation Health Sciences) from Johns Hopkins University. Dr. Links' expertise is in radiation physics and dosimetry, medical imaging instrumentation, radiation-based biomarkers, and terrorism preparedness and response. Dr. Links is a member of the Delta Omega National Public Health Honor Society, and is a past president of the Society of Nuclear Medicine, a 16,000 member professional medical society. Dr. Links is currently Director of the Johns Hopkins Center for Public Health Preparedness, and is Baltimore City's radiation terror expert, working with the Health, Fire, and Police Departments.

Dr. Genevieve M. Matanoski:

Dr. Genevieve Matanoski is Professor of Epidemiology at the Johns Hopkins Bloomberg School of Public Health and Director of the focus area of occupational and environmental epidemiology in the department. Dr. Matanoski is a past chair of the EPA Science Advisory Board, as well as past chair of the EPA SAB Radiation Advisory Committee. She has a B.A. degree from Radcliffe College where she majored in chemistry, an M.D. degree from Johns Hopkins School of Medicine and both Master and Doctor of Public Health degrees from Johns Hopkins School of Public Health. Dr. Matanoski also served as past chair of the American College of Epidemiology. She has been a member of several scientific committees for the National Cancer Institute (NCI), the National Institute of Environmental Health Sciences (NIEHS), Department of Energy (DOE), as well as special review committees for the National Academy of Science (NAS). Dr. Matanoski is currently a member of the NIEHS Committee on Report of Carcinogens, the Cancer Consortium and the Health Disparities Committees for the District of Columbia, and the Science Review Committee for the Veterans Administration. Her major research interests include the epidemiology of cancer and reproductive diseases especially as they relate to environmental and occupational exposures. Her recently completed studies include evaluation of the risks in the pulp and paper industry, asthma in Puerto Rican children from environmental exposures and relationship of styrene exposure to acute coronary syndrome. She has been involved in studies of the outcomes of cancers as related to health care practices. Her current research interests involves reactivating the studies of risks associated with low dose radiation in nuclear shipyard workers and studies of breast cancer outcomes in relation to treatment and other factors.

Dr. William F. Morgan:

Dr. William F. Morgan is the Director of Radiation Biology and Biophysics in the Biological Sciences Division at the Pacific Northwest National Laboratory. His research interests include the long-term molecular, biochemical, cellular and organismal consequences of cellular exposure to low doses of ionizing radiation. Of late his research has focused on radiation induced genomic instability and other non-targeted effects of ionizing radiation, and the identification of novel small molecules that might function as radio-sensitizers or protectors. Dr. Morgan received his Ph.D. and D.Sc. degrees, and M.Sc (with distinction) in Cytogenics, and B. Sc. in Botany from the University of Canterbury, Christchurch, New Zealand. He has been on the faculty at the University of California San Francisco and the University of Maryland Medical School in Baltimore before joining the staff at the Pacific Northwest National Laboratory. He is a member of the National Council on Radiation Protection and Measurements (NCRP), the International Commission on Radiation Protection (ICRP), and has served as a consultant to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

Mr. Bruce A. Napier:

Mr. Bruce A Napier is currently Staff Scientist in the Radiological Science and Engineering Group of the Pacific Northwest National Laboratory, operated by Battelle for the U.S. Department of Energy (DOE). He currently is a member of the SAB/RAC. He holds B.S. and M.S. degrees in Nuclear Engineering from Kansas State University, and is enrolled in the Radiation Health Physics program at Oregon State University. His expertise lies in dose reconstruction, computer modeling, environmental analysis, hazardous waste and emergency response for radionuclides. Mr. Napier is widely recognized as an international expert in the development and operation of computer models concerned with the environmental transport of radiological and chemical contaminants. He is currently involved with radiation dose reconstructions supporting epidemiological studies around the Mayak facility in Russia, and evaluations of the radiological risks from the proposed repository at Yucca Mountain. He has served as a consultant to the International Atomic Energy Agency (IAEA) and as Chair of the Ukranian and Belorussian Bi-National Advisory Groups for Chernobyl Studies for the U.S. National Cancer Institute (NCI). He is a Council Member of the National Council on Radiation Protection and Measurements (NCRP), a Fellow of the Health Physics Society (HPS), a Diplomate of the American Board of Health Physics, and a widely-published author or co-author of a number of peer-reviewed scientific papers, including over 120 articles, technical reports, and papers in the radiological and modeling area.

Dale L. Preston:

Dr. Dale L. Preston is a principal scientist with Hirosoft International where he is a biostatistician who has worked on studies of radiation health effects for more than 25 years and is the author/ coauthor of almost 100 peer-reviewed publications in this area. Previously, he worked at the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan (1981-2004), with a two year sabbatical (1987-1989) in the Radiation Epidemiology Branch of the National Cancer Institute (NCI). He continues to work on studies of cancer risks in the atomic bomb

survivors while also working on the assessment of cancer risk in populations exposed to radiation as a result of the operations of the Russian plutonium production complex (Mayak), and studies of a large cohort of X-ray technologists in the United States. Dr. Preston served as a consultant to the National Academy of Sciences (NAS) BEIR V committee and to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). Since 2000 he has been a member of Committee 1 of the International Commission on Radiological Protection (ICRP) where he played a major role in the development of the latest detriment estimates and tissue weighting factors. He is also the principal developer of the Epicure risk regression software that is widely used in studies of health effects of radiation and other environmental exposures. Dr. Preston is a fellow of the American Statistical Association. His research interests include: analysis of dose-response shape, effects modification, temporal patterns of radiation-associated cancer and non-cancer mortality and incidence; methodological research on the risk estimation from cohort survival and case-control data using generalized risk models; and the design and development of statistical software.

Dr. Genevieve S. Roessler:

Dr. Roessler is Editor-In-Chief of the Health Physics Society (HPS) Newsletter (since 1991) and the HPS Web site (1999 to the present). She served as a member of the SAB/RAC. She was an Associate Professor of Nuclear Engineering Sciences and Coordinator of the Radiological Science Program at the University of Florida (retired in 1993). She has served in numerous positions in the HPS, including President and Editor-in-Chief of the Journal *Health Physics* (1982 to 1988). She is Editor-in-Chief of the Society for Risk Analysis RISK *newsletter* (since 1997). She is a member of the Advisory Board on Radiation and Worker Health appointed by the President to advise the Department of Health and Human Services on its radiation compensation activities and is on the Binational Advisory Committee to the National Institutes of Health (NIH) on the Chernobyl Thyroid Study. She was a member of the National Council on Radiation Protection and Measurements (NCRP) (1990 to 2002). She has served on the U.S. Department of Energy's Health and Environmental Research Advisory Committee (HERAC, 1984-1988), including service on a number of HERAC Subcommittees, such as the Subcommittee on Nuclear Medicine (1987-1988), and the Subcommittee on Radiation Biology (1985-1988). She has served as the U.S. Delegate to the 5th through the 9th International Congress of the International Radiation Protection Association. She has served as a reviewer with the National Academy of Sciences (NAS), as well as the Technical Advisory Group of the Rocky Flats Blue Ribbon Committee of the State of Colorado. She has served on the Advisory Panel for the dose reconstruction project at DOE's Hanford site.

She has broad and in-depth experience in the areas of health physics, radiation protection, radiation biology, dosimetry, nuclear medicine, indoor radon, radiation risk evaluations, radioactivity in medicine and biology, in vivo and in vitro radioactivity measurements, whole body counting, radiation emergency planning, and public information and risk communication on radiation. Her academic background is in the disciplines of mathematics, radiation biophysics and environmental engineering focused on radiological health. Dr. Roessler holds a

Ph.D. in Environmental Engineering, with a specialty in Radiological Health, an M.S. in Radiation Physics, and a B.A. in Mathematics.

Dr. Daniel O. Stram:

Dr. Daniel O. Stram, Ph.D. is Professor of Preventive Medicine, Biostatistics Division, of the University of Southern California. He is currently a member of the SAB/RAC. His research is primarily focused upon statistical problems that arise out of the design, analysis, and interpretation of large scale epidemiological studies. His research interests include measurement error analysis, meta-analysis, longitudinal modeling, association-based studies of genetic susceptibility to cancer, and general exposure-response modeling in cancer epidemiology. Dr. Stram received his Ph.D. in Statistics from Temple University in 1983, and did postdoctoral training in Biostatistics at the Harvard School of Public Health from 1984-86. In 1986-1989 he was a member of the Statistics Department of the Radiation Effects Research Foundation (RERF) in Hiroshima, Japan, collaborating on studies of the health of survivors of the atomic bombings. Since coming to the University of Southern California in 1990 he has been involved as co- or principal investigator in studies of the Colorado Plateau Uranium Miners cohort, the Multi-ethnic Cohort Study, and the California Teachers Study. Dr. Stram was a member of the National Academy of Sciences' (NAS) Board on Radiation Research from 1997-2003. He has participated in the preparation of many NAS reports reviewing research into the impact of radiation releases on the health of nuclear weapons plant workers and populations living downwind of weapons facilities and nuclear test sites. Dr. Stram has authored or co-authored over 130 peer-reviewed articles in statistical, medical, and epidemiological journals.