

Candidates for the Phase 1 Studies Independent Scientific Panel

- **James H. Clarke, Ph.D.**

- Dr. Clarke is a Professor of the Practice of Civil & Environmental Engineering, and Professor of Earth & Environmental Sciences at Vanderbilt University. Prior to joining the full-time Vanderbilt faculty in 2000, Dr. Clarke served as Chairman, President, and CEO of an internationally recognized consulting firm that specialized in the investigation and remediation of contaminated sites, risk assessment and industrial wastewater treatment. His research at Vanderbilt focuses on the investigation, remediation and long-term management of legacy hazardous chemical and radioactive waste sites with an emphasis on performance assessment and confirmation for near-surface disposal facilities, and the decommissioning of nuclear, radiological and industrial facilities.

Dr. Clarke was a member of the former Nuclear Regulatory Commission (NRC) Advisory Committee on Nuclear Waste and Materials, and advised the NRC and the staff on issues concerning the Yucca Mountain project, risk-informed performance-based approaches to site decommissioning and remediation (lead Committee member) and the overall nuclear waste regulatory program. He is a consultant to the NRC Advisory Committee for Reactor Safeguards and its subcommittee on Radiation Protection and Nuclear Materials. Dr. Clarke has served on committees of the National Academies (the Committee on Remediation of Buried and Tank Waste), and is a peer reviewer for the National Academy, the U.S. Environmental Protection Agency, the Department of Energy, and several journals and book publishers. Dr. Clarke received his doctorate in theoretical physical chemistry from Johns Hopkins University, and a bachelor's degree in chemistry with honors from Rockford College.

- **B. John Garrick, Ph.D.**

- Dr. B. John Garrick was appointed to the U.S. Nuclear Waste Technical Review Board as Chairman on September 10, 2004, by President George W. Bush. Dr. Garrick is an executive consultant on the application of the risk sciences to complex technological systems in the space, defense, chemical, marine, transportation and nuclear fields. He served for 10 years (1994-2004) on the U.S. Nuclear Regulatory Commission's Advisory Committee on Nuclear Waste, with four of those years serving as Chair.

Dr. Garrick was elected to the National Academy of Engineering in 1993, President of the Society for Risk Analysis 1989-90, and, in 1994, was recipient of that Society's most prestigious award—the Distinguished Achievement Award. He has been a member and chair of several National Research Council committees, having served as vice chair of the Academies' Board on Radioactive Waste Management, and as a member of the Commission on Geosciences, Environment and Resources. He recently chaired the National Academy of Engineers Committee on Combating Terrorism. Among other National Academy committees, Dr. Garrick has chaired the Committee on the Waste Isolation Pilot Plant, the Committee on Technologies for Cleanup of High-Level Waste in Tanks in the DOE Weapons Complex, and the Panel on Risk Assessment Methodologies for Marine Systems. Other Academy committee memberships include space applications, automotive safety and chemical weapons disposal. He is a member of the first class of lifetime national associates of the National Academies.

Dr. Garrick received his doctorate in engineering and applied science from the University of California, Los Angeles, in 1968. His fields of study were neutron transport, applied mathematics and applied physics. He received his master's degree in nuclear engineering from UCLA in 1962, attended the Oak Ridge School of Reactor Technology in 1954-55, and received his bachelor's degree in physics from Brigham Young University in 1952. He is a fellow of three professional societies: the American Nuclear Society, the Society for Risk Analysis and the Institute for the Advancement of Engineering.

- **Kristin Shrader-Frechette, Ph.D.**

- Dr. Shrader-Frechette has held senior professorships at the University of California and the University of Florida. Dr. Shrader-Frechette currently is employed as an O'Neill Family Professor, Department of Biological Sciences and Department of Philosophy, at the University of Notre Dame, where she also directs the Center for Environmental Justice and Children's Health. She has held Woodrow Wilson Foundation, National Science Foundation, and Carnegie Foundation Fellowships in philosophy of science, and has held offices/served on committees in the U.S. National Academy of Sciences, the Risk Assessment and Policy Association, the American Philosophical Association, the Philosophy of Science Association, the Society for Philosophy and Technology, and the International Society for Environmental Ethics. Dr. Shrader-Frechette has been a member of many boards and committees of the International Commission on Radiological Protection, U.S. Environmental Protection Agency, National Council on Radiation Protection and Measurement, and the National Research Council/National Academy of Sciences, including its Board on Environmental Studies and Toxicology, its Committee on Risk Characterization, and its Committee on Zinc-Cadmium-Sulfide Dispersions.

Dr. Shrader-Frechette studied physics at Xavier University, then graduated summa cum laude, in 1967, with an undergraduate major in mathematics from Edgecliff College, Xavier University. In 1972, she received her doctorate in philosophy of science from the University of Notre Dame. She also did postdoctoral work for two, one, and two years, respectively, in biology (community ecology), economics and hydrogeology. In 2004, Dr. Shrader-Frechette became only the third American to win the World Technology Award in Ethics for her work in public health and environmental ethics. Dr. Shrader-Frechette is Editor-in-Chief of the Oxford University Press monograph series on Environmental Ethics and Science Policy, and a member of the U.S. EPA Science Advisory Board. She also serves on the editorial boards of 22 professional journals. Past-President of the Society for Philosophy and Technology (SPT), the Risk Assessment and Policy Association (RAPA), and the International Society for Environmental Ethics (ISEE), Dr. Shrader-Frechette was the first woman president of all three international organizations (SPT, RAPA, ISEE). She has served as Principal Investigator (PI) for grants from the National Science Foundation (NSF), the National Endowment for the Humanities, the Council on Philosophical Studies and the U.S. Department of Energy. The NSF has funded her research for 25 years.

- **Chris G. Whipple, Ph.D.**

- Dr. Whipple is currently a Principal in Environ International's Emeryville, California office. His expertise is with the management of risks to health and the environment. His experience includes work on risk assessment methods, risk management, regulation and risk communication. Major emphases of his work have been with risks associated with radioactive wastes, hazardous air pollutants and with risk communication. He has served on numerous national committees to study and provide advisement on radioactive waste management; including committees of the National Academy of Sciences, Environmental Protection Agency, and National Council on Radiation Protection and Measurement, of which he is a member. He was appointed to the National Academy of Sciences Board on Environmental Studies and Toxicology and was elected to membership in the National Academy of Engineering in 2001. Dr. Whipple was a charter member of the Society for Risk Analysis and served as its second president. In 1990, he received the society's outstanding service award. He is a Fellow of the American Academy for the Advancement of Science and of the Society for Risk Analysis. His experience prior to joining Environ includes positions as Vice President of ICF Consulting, Vice President of ICF Kaiser International, and Technical Manager for Environmental Risk Assessment of EPRI's Environment Division.

Dr. Whipple earned his doctorate (1974) and master's (1971) in Engineering Science at the California Institute of Technology. He earned his bachelor's degree in Engineering Science at Purdue University in 1970. Dr. Whipple has since received the Distinguished Engineering Alumnus Award from Purdue University, and has been elected twice to the National Council on Radiation Protections and Measurements.