

**Jessica Oluwabunmi Akande** is originally from Nigeria but got her B.Sc in Ecology and Evolutionary Biology from Tulane University, New Orleans in 2008. In 2009, she completed her M.Sc program in Environmental Biology, also from Tulane University. In these programs, she learnt more and more about climate change and increasingly grew interested in the concept of global warming as a whole. This prompted her to apply for another Master's degree in the Renewable Resources department of the University of Alberta, where she could study forestry. She started studying soil respiration in 2011 as a Master's student but changed into a Ph.D. program in 2012 to increase her knowledge of this particular subject. Soil respiration studies gave her an opportunity to further learn about belowground processes in carbon cycle. Her hobbies include travelling, dancing and reading.

**Dorothy Allen** is currently a Project Manager at the Massachusetts Department of Environmental Protection managing remediation at NPL Superfund sites. Her current interests include remedy optimizations and applications of innovative technologies to improve site clean-ups. Ms. Allen has spent 20 years implementing diverse regulatory programs under the Clean Water Act, RCRA, HSWA and CERCLA at US EPA Regions 1 and 2 as well as MassDEP. She is an active participant on the Interstate Technology and Regulatory Council and EPA's Engineering Forum. Ms Allen received a BS in Chemical Engineering and MS in Environmental Engineering from University of Massachusetts, Amherst.

**Hashem Al-Mattarneh** was born in Zarka, Jordan in 1961. He graduated from Civil Engineering College at Yarmouk University, Jordan, in 1986. He received his M.Sc. and Ph.D. in Civil Engineering from the National University of Malaysia in 2000 and 2005 respectively. He worked as design and consultant engineer from 1986 until 1997. From 2002 to 2005 he has been an Assistant Professor at University Technology MARA, Malaysia. In 2006 he was an Associate Professor and head of structural unit at University Tenaga Nasional, Malaysia. From 2009 to 2011 he was the dean of faculty of engineering at Jrash University, Jordan. His research activity has been addressed to sensors, electromagnetic nondestructive testing and evaluation, advanced material characterization, and structural health monitoring. Currently he is an associated professor at Faculty of Engineering, Najran University, Saudi Arabia. Dr Al-Mattarneh is member in several national and international organization including, JEA, ACI, ASNT, IACT, IEEE and ASCE.

**Saud S. AL Oud**, Ph.D., is a Soil Environmental Chemistry Professor in the soil sciences department at King Saud University. My research interest includes: Phases and components of the soil-water-plant stem, behavior of elements added to soils from wastes and contaminants, treatment techniques for the remediation of heavy metal contaminated soils. I work as an environmental consultant for mining firms in Saudi Arabia, and also as a consultant for the water municipal of Qassim region of Saudi Arabia.

**Ed Alperin**, QEP is the Chief Operating Officer of Solutions-IES, Inc. and its subsidiary EOS Remediation, LLC. He is responsible for the day-to-day operations of the company and provides the leadership and management to facilitate growth of the organization. He earned his BS in Chemical Engineering from Lowell Technological Institute (now UMass Lowell) and has more than 39 years of experience in operations management, strategic development, commercialization, and application of environmental technologies for the treatment of hazardous, toxic and radioactive waste. Prior to joining the company, he held a senior management position in a Fortune 500 environmental company where he managed operating and engineering groups that were responsible for the application of technology solutions. He was responsible for taking remediation technologies from conceptual development in the laboratory through commercialization and implementation in the field.

**Trevre Roy Andrews** has six years of experience with AECOM in NAPL site management and closure. Trevre Andrews works closely with Andrew Kirkman (AECOM) leading the AECOM LNAPL team of more than a dozen LNAPL experts in developing the cutting edge of LNAPL remediation science. Recently they have completed the publication of the ASTM methodology,

*Standard Guide for Estimation of LNAPL Transmissivity*, providing the cornerstone for LNAPL mobility metrics. Mr. Andrews has applied these LNAPL techniques on over 70 sites across the globe focusing on the development of site conceptual models, remedial goals, practicable technology implementation, and concrete paths towards site closure. These LNAPL sites include retail, rail, refinery, terminal, pipeline, exploration, and utilities. Additionally Mr. Andrews works on Manufactured Gas Plants with DNAPL and innovated chlorinated remedial system design including ISCO with recirculation. Specifically Mr. Andrews has completed technical work in LNAPL distribution and recoverability modeling, contaminant hydrology, pilot study completion, field investigation techniques, techniques used in geophysical exploration related to contaminants, direct sensing, visual modeling, groundwater modeling, mass flux analysis, natural source zone depletion, and sustainable remediation. Mr. Andrews has recently presented on new methodologies for applying Transmissivity as a metric to DNAPL. Mr. Andrews is involved with the implementation of new guidance and regulations related to NAPL contaminated sites in a variety of states including Michigan, Minnesota, Virginia, and Iowa.

**Chris Arsenault** has been with Geosyntec Consultants since 2007 and specializes in the design and implementation of groundwater, soil, and indoor air remedial strategies including bioremediation, chemical oxidation, soil vapor and multi-phase extraction, and monitored natural attenuation. He has worked on projects under the control of the U.S. EPA and numerous state agencies, and is well versed in field investigation procedures regarding state and federal regulations governing environmental site work. Mr. Arsenault has worked on projects for many Fortune 500 clients, as well as projects at high profile sites. Mr. Arsenault also advises public and private sector clients on implementing multi-million dollar water development programs in resource-poor areas that focus on community-driven development. These projects are typically funded by large NGOs (e.g. Unicef, USAID, World Bank) or private sector donors pursuing corporate social responsibility (CSR). He also specializes in auditing WASH projects by traveling to project locations and meeting with contractors, community leaders, and local NGOs. His experience is mainly in Sub-Saharan Africa.

**Wardah Azhar** is a PhD student at the University of Texas at Austin in the Civil, Architectural and Environmental Engineering Department. She is currently working with Dr. Danny Reible as part of his sediment remediation group at UT Austin. She has previously received her MS degree in Civil and Environmental Engineering from Carnegie Mellon University. Her research involves performance of active capping materials based on sorption properties and prediction of field performance of these materials using numerical modeling.

**Ralph S. Baker**, Ph.D. is the Chairman and Chief Scientist of TerraTherm, Inc., a thermal remediation firm located in Gardner, Massachusetts. A Certified Soil Scientist with an M.S. in soil chemistry and a Ph.D. in soil physics, he has 35 years' experience in the evaluation, design and implementation of technologies for in-situ and on-site treatment of wastes in soil and groundwater. Dr. Baker has served as an expert on a wide range of innovative physical, chemical and biological treatment technologies as a consultant to industry and government. Over the past 15 years and particularly since co-founding TerraTherm, Inc. in 2000, Dr. Baker has focused his attention on application of *in-situ* and *ex-situ* thermal remediation of contaminated soils via simultaneous application of heat by thermal conduction and vacuum. He has authored over 70 scientific publications on in-situ/on-site remediation and soil physics.

**Raymond G. Ball**, PhD, P.E., L.S.P. is the founder of EnChem Engineering, Inc. a company that provides advanced environmental solutions for site remediation focusing on in situ treatment technology. The company also performs funded R&D and technology development from which its proprietary in situ chemical oxidation technologies known as OxyZone® and OxyZone-C were developed. Dr. Ball developed "advanced mixed oxidation" or OxyZone for the purpose of chemically destroying a wide variety of recalcitrant organic chemicals. The OxyZone chemistry has been successfully applied at a number of sites and the company has most recently introduced OxyZone-C for enhanced treatment of less soluble contaminants. Dr. Ball, an environmental engineer, has 32 years of national experience with environmental issues related to

organic and inorganic pollutants in the environment. Of those 32 years, he has been a Registered Professional Engineer since 1992 in several states and a Licensed Site Professional in Massachusetts since 1993. He has consulted throughout the United States to the federal government and industry. Dr. Ball has served as a hazardous waste consultant to the U.S. Environmental Protection Agency on various remediation projects at military bases throughout the U.S. He has managed major remediation projects for national industrial clients.

**Scott Barker** is Managing Director and a Principal at TOTERRA Remediation Ltd., based in Burlington, Ontario, Canada. He earned a Bachelor of Science Degree in Chemical Engineering, with a specialization in Biochemical and Environmental Engineering, at Queen's University in Kingston, ON and a Master of Business Administration Degree at the Ivey School of Business, Western University. Scott has extensive experience in water treatment, chemical formulation, production, and distribution, and waste management and resource recovery. Prior to the establishment of TOTERRA, he held senior operational and leadership roles with Toyota Tsusho and Newalta Corp. His current focus is on expanding the delivery of TOTERRA's soil enhancement, amendment emplacement, and 3D subsurface mapping services in eastern Canada and the northeast U.S.

**Kathleen Baskin**, Director of Water Policy at the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), develops and implements state water policy on issues such as flow and habitat alteration, stormwater management, water quality, and water supply allocation. She is managing EEA's climate change adaptation initiative, which has included convening the MA Climate Change Adaptation Advisory Committee, preparing the MA Climate Change Adaptation Report, and chairing the Adaptation Subcommittee of the Global Warming Solutions Act Implementation Advisory Committee. She is EEA's lead advisor for the MA Sustainable Water Management Initiative, which promotes protection and sustainable management of water resources for ecological needs and economic development. Before joining EEA, Ms. Baskin developed and directed technical research programs and established watershed management priorities for the Charles River Watershed Association and was a consultant at an international engineering firm. She has an MS degree in Environmental Engineering and BS degrees in Civil Engineering and Biology, all from Tufts University.

**Buddy Bealer**, is the Americas Policy and Advocacy Regional Manager for Shell Soil and Groundwater Focus Delivery Group working from his virtual office located in Nazareth, Pennsylvania. He received his B.S. in Mechanical Engineering from the Pennsylvania State University and his MBA from the University of Connecticut. He has worked in the petroleum industry since 1988 and has 23 years experience in remediation. He is a board member of the Sustainable Remediation Forum (SURF) and is the Shell advocacy global lead in sustainable remediation and petroleum vapor intrusion. He was a contributing author on the Interstate Technology and Regulatory Council (ITRC) Green and Sustainable Remediation team and trainer for ITRC's GSR webinar series.

**Lila Beckley** is a geologist with GSI Environmental in Austin, Texas. Her primary practice areas are vapor intrusion and regulatory support. In the area of vapor intrusion, she has conducted assessments using both conventional and innovative methods at sites around the U.S., developed and tested investigation protocols as part of DoD-funded research, developed guidance and training programs for corporate clients, and is a member of regulatory guidance development workgroups such as ITRC. Since joining GSI in 2007, she has also been involved with environmental assessment, long-term groundwater monitoring optimization, regulatory/litigation support, and database/software development projects. Prior to joining GSI, Ms. Beckley worked for more than a decade in enforcement and remediation programs at the Texas Commission on Environmental Quality, in various roles ranging from project to program management.

**Nelson Beyer** is a research biologist at the Patuxent Wildlife Research Center, in the US Geological Survey. He studies the uptake of environmental contaminants through food chains

into wildlife. He maintains interests in earthworms, birds and mammals, and has generally worked on terrestrial superfund sites for the Fish and Wildlife Service, documenting injuries to wildlife from metals. Over the years, he has demonstrated how the ingestion of contaminated soil via predation on earthworms or through inadvertent ingestion of soil is a major pathway of exposure of wildlife to lead.

**Carol Bois**, L.S.P., founded Bois Consulting Company, Inc. in Framingham, Massachusetts, in 1998. Bois Consulting is a woman-owned, environmental consulting company specializing in hazardous waste site investigation and remediation projects as well as environmental, health and safety regulatory assistance. She is a Massachusetts Licensed Site Professional (LSP) and former President of the Massachusetts LSP Association. Ms. Bois was the head of the 21E Site Assessment Branch in the DEP's Central Regional Office in Worcester, Massachusetts, and has worked as an environmental consultant since 1988. Ms. Bois has a Bachelor's degree in Biology from the University of Rochester and a Master's degree in Public Health from Boston University. She is currently an active member of the LSP Association; the Science Advisory Board for the UMass Conference on Soils, Sediments, and Water; the Society for Women Environmental Professionals; and Women's Environmental Network.

**Stephanie (Bosze) Salisbury** has spent the majority of her 13 year career as a consulting geologist and is currently an associate geologist for Apex Companies LLC (Portland, Oregon). Stephanie manages several remediation projects in the Pacific Northwest, Midwest and Southern, U.S. including industrial facilities, fuel terminals and fuel pipeline related sites. During her career, Stephanie has implemented site investigations and remediation projects at a variety of petroleum sites (bulk terminals, pipelines, service stations, LUST sites), industrial facilities, chlorinated solvent sites, abandoned mines, port facilities, and waste storage facilities. Her expertise includes developing focused strategies for soil, groundwater and sediment investigations, evaluating soil, groundwater and sediment data to develop remedial alternatives, and interacting with regulatory agencies to obtain approval for technically supported, cost-effective remedial solutions. Stephanie is a graduate from the University of Akron (B.S. Geology, 1997) and Miami University (M.S. Geochemistry, 2001), and is a registered geologist in Washington and Oregon.

**John E. Boyer** is an Environmental Scientist at the New Jersey Department of Environmental Protection in Trenton, New Jersey. John has worked with the NJDEP since 1988 providing technical support involving all aspects of site remediation. He is a principal in developing vapor intrusion policy for NJDEP and is currently Chair of the NJDEP/Stakeholder VI Guidance Committee. John is co-author of the NJDEP Vapor Intrusion Guidance (2005) and the updated NJDEP Vapor Intrusion Technical Guidance (2013). As Co-Leader for the Interstate Technology and Regulatory Council (ITRC) Vapor Intrusion Team, John was a primary writer for the ITRC companion documents, Vapor Intrusion Pathway: A Practical Guideline and Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios (2007). He is currently Co-Leader for the ITRC's Petroleum Vapor Intrusion Team. He routinely presents on vapor intrusion issues at various conferences and seminars, including USEPA, Air & Waste Management Association, ASTSWMO, AFCEE, ASTM, Federal Remediation Technologies Roundtable, SERDP ESTCP, Battelle, American Petroleum Institute, and AEHS. In addition, John has written VI articles for publications that include the American Bar Association and EM (Environmental Managers). He has been an instructor for ITRC's Vapor Intrusion classroom training from 2008 - 2011. John earned a bachelor's degree in biology from Belmont Abbey College in Belmont, North Carolina in 1980 and a master's degree in environmental science (human toxicology concentration) from Drexel University in Philadelphia, PA in 1985.

**Lisa Bradley**, Ph.D., DABT, is a Vice President and Senior Toxicologist/Risk Assessor and with AECOM. She has a Ph.D. in toxicology from the Massachusetts Institute of Technology, is certified by the American Board of Toxicology, and has 25 years of experience in risk assessment and toxicology consulting. She has conducted risk assessments for coal ash landfills, environmental communications for proposed landfills, and has worked with clients to evaluate and comment on state groundwater standards for coal ash related constituents. Dr. Bradley is the

manager and technical lead for AECOM's coal combustion product (CCP) initiative, and has been active with utilities and industry trade groups in responding to EPA's proposed rulemaking. She has published and given many talks on various aspects of CCP risk assessment issues and the proposed rules. She has been active with ACAA and with the Government Relations Committee, and was recently elected to the ACAA Executive Committee by the Board of Directors.

**Geoffrey Brown** is a Senior Vice President at ENPRO and has worked at the firm for more than 16 years. Dr. Brown holds a Ph.D. in Soil Science from Cornell University, an M.S. in Environmental Pollution Control from Penn State, and a B.S. in Environmental Science from the University of New Hampshire. Dr. Brown specializes in the assessment and remediation of complex oil and hazardous materials release sites and has more than 20 years' experience in the environmental field, with both environmental consulting/contracting firms and the Massachusetts Department of Environmental Protection.

**Heath Brown** is a Project Geoscientist for Environmental Standards, Inc., headquartered in Valley Forge, Pennsylvania. Mr. Brown has 10 years of environmental consulting experience primarily focused on soil and groundwater investigation and remediation. He has managed numerous soil and groundwater investigation projects and has direct experience involving remediation techniques such as air sparge and soil vapor extraction, enhanced fluid recovery, excavation, *in-situ* chemical oxidation, and pump-and-treat. His experience includes managing environmental remediation projects under US EPA's Superfund program and Pennsylvania's Act 2 and Act 32 programs. He also has experience conducting Phase I Environmental Site Assessments and has performed numerous Third-Party Quality Assurance Audits of environmental characterization and remediation programs. Mr. Brown received a Bachelor of Science Degree in Earth Science from Bloomsburg University (Pennsylvania) in 1996.

**Edward J. Calabrese** is a Professor of Toxicology at the University of Massachusetts, School of Public Health and Health Sciences, Amherst. Dr. Calabrese has researched extensively in the area of host factors affecting susceptibility to pollutants, and is the author of over 750 papers in scholarly journals, as well as more than 10 books, including Principles of Animal Extrapolation; Nutrition and Environmental Health, Vols. I and II; Ecogenetics; Multiple Chemical Interaction; Air Toxics and Risk Assessment; and Biological Effects of Low Level Exposures to Chemical and Radiation. Along with Mark Mattson (NIH) he is a co-editor of the recently published book entitled Hormesis: A Revolution in Biology, Toxicology and Medicine. He has been a member of the U.S. National Academy of Sciences and NATO Countries Safe Drinking Water committees, and on the Board of Scientific Counselors for the Agency for Toxic Substances and Disease Registry (ATSDR). Dr. Calabrese also serves as Chairman of the Biological Effects of Low Level Exposures (BELLE) and as Director of the Northeast Regional Environmental Public Health Center at the University of Massachusetts. Dr. Calabrese was awarded the 2009 Marie Curie Prize for his body of work on hormesis. He was the recipient of the International Society for Cell Communication and Signaling-Springer award for 2010. Dr. Calabrese will receive an honorary Doctor of Science from McMaster University, Hamilton, Ontario 2013. Over the past 20 years Professor Calabrese has redirected his research to understanding the nature of the dose response in the low dose zone and underlying adaptive explanatory mechanisms. Of particular note is that this research has led to important discoveries which indicate that the most fundamental dose response in toxicology and pharmacology is the hormetic-biphasic dose response relationship. These observations are leading to a major transformation in improving drug discovery, development, and in the efficiency of the clinical trial, as well as the scientific foundations for risk assessment and environmental regulation for radiation and chemicals.

**Gina M. Calderone**, P.G., C.P.G. is a senior hydrogeologist with ECC in Marlborough MA, USA. She has worked on federal facility cleanup programs for the last 17 years and currently works on projects at Department of Defense Installations (Navy, Army, Air Force) in the United States and Europe involving site characterization, remediation, and water resources. Ms. Calderone specializes in remedial investigations and site assessment, conceptual model development and aquifer geochemistry. Ms. Calderone received a Bachelor of Science degree

(Cum Laude) in Geology from Fairleigh Dickinson University, Madison, New Jersey; a Master of Science Degree in Geology/Geochemistry from Ball State University, Muncie, Indiana and earned a second Master of Science Degree in Hydrogeology from Rensselaer Polytechnic Institute, Troy, New York. She received several academic research grants including a Ball Corporation Research Grant to conduct geochemical research at the University of Chicago and in was awarded a United States Fulbright Scholarship to conduct research an active geothermal center in northern Iceland while working at the Nordic Volcanological Institute in Reykjavik, Iceland. Ms. Calderone is a licensed Professional Geologist in several states in the United States. For 15 years, Gina has been an active member of the Pollution Monitoring Panel for the World Federation of Scientist supported by World Laboratory/CERN, Geneva.

**Rich Carbonaro**, Ph.D., is a partner and Senior Environmental Engineer at Mutch Associates, LLC. He specializes in environmental geochemistry and modeling fate, transport, and remediation of metals and other contaminants in soil, groundwater, and sediments. Dr. Carbonaro's doctoral work at Johns Hopkins focused on the environmental fate and transformations of hexavalent chromium. Dr. Carbonaro has been extensively involved in reactive transport modeling of in situ chemical reduction (ISCR) of hexavalent chromium, in situ chemical oxidation (ISCO) of chlorinated solvents using oxidants such as catalyzed hydrogen peroxide and permanganate, and enhanced in situ bioremediation (EISB). He has also been involved in the design and implementation of leachability studies for aquifer material contaminated with chromium and arsenic. Prior to joining Mutch Associates, Dr. Carbonaro was a full-time tenured faculty member in the Civil and Environmental Engineering Department at Manhattan College in Riverdale, NY. While at Manhattan, Dr. Carbonaro managed research projects related to water quality monitoring of urban pollutants, transport modeling of metals in sediments, unit-world modeling of metals in lakes for toxicity assessment, and partitioning of metals onto organic carbon. Dr. Carbonaro currently holds the position of part-time Research Associate Professor at Manhattan College where he teaches graduate courses in water chemistry and water treatment unit processes.

**Patrick Carnevale** has been a Regional Manager for the Massachusetts Emergency Management Agency for twelve years. In this role, Pat and his staff offer guidance to local communities in managing their emergency management preparedness efforts and offer support and assistance during disaster events. Pat's region consists of 161 cities and towns within the Commonwealth of Massachusetts. He was part of the lead response efforts for all four presidentially declared disasters in Massachusetts in 2011 as well as supporting response efforts for many other disasters that have impacted the Commonwealth during the past twelve years. Under the EMAC compact, he has been part of mutual-aid deployments to several other states for hurricanes, tornadoes as well as man-made disasters. He and his team have supported communities during large planned events such as the Women's U.S. Open, a visit by the Dalai Lama, various air shows and community Fourth of July events. Pat holds a Bachelors degree from Massachusetts College of Liberal Arts and a Masters degree from Western New England University.

**Sean Carroll** is an engineer and hydrologist with a total of sixteen years of experience in environmental consulting, and has been with Haley & Aldrich for thirteen years. He has a B.S. in Civil Engineering from the University of Notre Dame and an M.S. in Hydrology and Water Resources from the University of Arizona in Tucson. He is registered as a Professional Engineer in Massachusetts and is a Licensed Environmental Professional in Connecticut. Much of his work has been in the area of subsurface remedial investigation, with a particular focus on assessment and remediation of manufactured gas plant sites. He has worked in Colorado, Massachusetts, Indiana, and Connecticut, where he currently lives and works in the Hartford Office of Haley & Aldrich.

**Richard Cartwright**, PE, CHMM, CPIM is a Senior Vice President at M-E-C-X, a service-disabled, veteran-owned small business. He has an MBA from Indiana University, BES in Chemical Engineering from Brigham Young University, and Professional Certificate in Project

Management from SUNY Buffalo. Mr. Cartwright is an internationally recognized motivational platform speaker.

**Dora Chiang, Ph.D., P.E.** has over 15 years of experience as remediation practice area lead and project manager for environmental investigation and remediation projects. She leads in selecting, designing and implementing remediation systems for soil, sediment, and groundwater contaminated with petroleum compounds, POPs, PAHs, chlorinated solvents, emerging contaminants and metals at federal, industrial, commercial and state sites. Dora has focused her recent project studies on investigation, developing conceptual site model and treatment technologies for emerging contaminants including 1,4-dioxane, nanomaterials and PFCs.

**Kelly Clemons** is a Technical Sales Representative at TerraTherm, Inc. Ms. Clemons has a strong background in the environmental field with 20 years of experience as a technician and manager for analytical and treatability laboratories; and corporate quality assurance. She received a Bachelor's of Science degree in Biology from Emory College in Atlanta, GA. For the past six years, she has been involved with environmental remediation with a focus on managing treatability evaluation and technical sales. Ms. Clemons currently manages TerraTherm's technical sales inquiries, and participates in related conceptual design development and report writing.

**John Collins** is General Manager and COO of AquaBlok, Ltd. Mr. Collins is responsible for all day to day activities of the company, which include; technology development, manufacturing and marketing. The company developed, patented and manufactures a wide range of products using their unique technology in not only the environmental remediation markets, but also in phosphorous reduction, annular sealants, pond/canal liners, and other segments as well. Mr. Collins has over 25 years of experience in a range of engineering and environmental related businesses, managing research, product development, technology licensing, capital goods manufacturing and venture capital investments. He has been with AquaBlok for six years and has guided the development of several new products and managed two major remediation projects.

**Greg Cooper**, Division Director of Business Compliance, Massachusetts Department of Environmental Protection (MassDEP) has nearly 20 years of experience working on solid waste issues in Massachusetts. He currently manages the Commonwealth's efforts on waste reduction, recycling, toxicity reduction, and composting. This includes running several financial and technical assistance programs and actively participating in solid waste policy and regulatory development.

**Jack Cornett** is a professor at the University of Ottawa where he is the Canada Research Chair in Radiochemistry and Environmental Health. Jack holds a BSc from the University of Toronto and a PhD in environmental chemistry from McGill University. Jack also is an adjunct professor at Trent and Carleton Universities in the Chemistry and Environmental Science graduate studies programs. He has taught interdisciplinary courses ranging from Philosophy of Science to Groundwater Hydrology at Trent University to Environmental Health in the University of Ottawa Medical Science program. Dr. Cornett's interdisciplinary research spans fields from to risk analysis, radiochemistry, accelerator mass spectrometry to the modelling of water and contaminant transport, radiation protection and health science. He has authored over 300 papers and invited presentations that are published in journals ranging from Radiation Protection Dosimetry and Atomic Spectroscopy to Science. Dr. Cornett has held a number of senior science positions and launched many new science programs throughout his career. He has been Director General for Defence Research and Development Canada's Atlantic Laboratories and Maritime Science Advisor for the Canadian Forces, the Director of the Radiation Protection Program at Health Canada, the leader of the Centre for Security Science Radiological – Nuclear Science Cluster and the chief scientist and the program manager for the Candu Reactor Environmental and Emergency Response programs.

**Scott Crawford** is a Senior Project Manager and Engineer at XDD in Stratham, New Hampshire. Mr. Crawford has over 18 years of design and application experience with in situ remediation technologies, including large scale in situ chemical oxidation, thermally enhanced soil vapor extraction, bioremediation, and vapor intrusion mitigation projects. His experience has been shared in peer review journals, at nationally recognized conferences, and as an invited speaker at industry / professional meetings. Mr. Crawford earned a Master of Science in Civil Engineering from the University of Massachusetts at Lowell where he studied surfactant enhanced soil flushing technologies. He currently resides in Exeter, New Hampshire.

**Gerald Cresap** is a GES regional engineering manager with 22 years of experience designing soil and groundwater remediation systems at more than 200 sites impacted by various contaminants including: chlorinated solvents, fuel and waste oils, coal tar and other MGP waste products, gasoline, PCBs, and heavy metals. He has developed innovative remedial strategies for numerous contaminated sites and was recently awarded a US patent for an in-situ chemical oxidation process. Mr. Cresap earned a BS in mechanical engineering from the Georgia Institute of Technology and is a registered professional engineer in New York and all New England states.

**William Cutler**, Ph.D., is a professional geologist with 30 years of experience in geosciences primarily focused on environmental site assessment and remediation. Prior to his consulting career with Integral Consulting, he worked as an in-house remediation manager for Dow Chemical Company and FMC Corporation. He is well versed in managing all aspects of environmental projects, including strategy development, study design, technology assessments, senior management and agency communications, consulting and contracting services, field implementation, community relations, government affairs, and financial assessment and control. Over the past 10 years, he has worked extensively on the emerging issue of arsenic contamination in soils of former sugar cane plantations in Hawaii on behalf of both private and governmental clients.

**Rebecca Damberg-Mausser** is an Engineer in Weston & Sampson's Environmental, Geotechnical, and Energy Group in Peabody, Massachusetts. She has a bachelor's degree in Mechanical Engineering from Union College and is currently a candidate for a master's degree in Environmental Engineering from the University of New Hampshire. She specializes in the assessment and remediation of hazardous waste sites including manufactured gas plants, demolition, and Massachusetts Contingency Plan Sites.

**Gautham P. Das**, Ph.D, has served as Assistant Professor of Civil and Environmental Engineering at Wentworth Institute of Technology in Boston, Massachusetts since August 2008. Dr. Das received a doctorate from the University of North Carolina at Charlotte. Prior to starting his teaching career, Dr. Das worked for environmental consulting firms in North Carolina and Boston. His expertise lies in Water Resources, Hydraulic Engineering and Environmental Remediation. He is active in the Water Environment Federation, the New England Water Environment Association and the American Society for Engineering Education. He has authored numerous technical papers on various civil and environmental engineering subjects that have been presented at technical conferences and appeared in the Proceedings of those conferences. <http://gauthampdas.us/>

**Robin V. Davis** is a Licensed Professional Geologist and Project Manager with the Utah Department of Environmental Quality, Leaking Underground Storage Tank program. She has over 30 years of professional experience, and specializes in fate and transport of petroleum hydrocarbons, natural attenuation, and risk assessments. Her most recent work includes acquisition and analysis of petroleum vapor data for the purpose of developing screening criteria for the petroleum vapor intrusion exposure pathway.

**George DeVaul** has a Ph.D. and is a Principal technical Expert at Shell Global Solutions, with experience in applied methods of measuring, estimating, and modeling chemical fate and transport in the environment. He has developed several methods for modeling and

parameterizing soil vapor emissions, including vapor intrusion to indoor air, and has also developed and applied varied risk assessment methods in site remediation decisions.

**Peter Dillon** has over 25 years of experience with geologic and hydrogeologic investigations and evaluations to and has been at TetraTech in various capacities since 1999. He has managed multi-media, multi-disciplinary remedial investigations, feasibility studies, remedial designs and remedial actions. He has held the position of geologic/hydrogeologic lead on numerous projects involving various contamination characterizations and remediation's, including investigation design and implementation; numerical groundwater modeling, pumping tests and analysis, and groundwater capture system designs. Mr. Dillon's specific technical expertise comprises groundwater movement, contaminant fate and transport, natural attenuation, and groundwater regulations in the New England states. As the TetraTech National Geoscience Discipline Lead, Mr. Dillon is responsible for the proper worldwide deployment of geosciences staff, hiring appropriate staff and ensuring technical training and mentoring of the geoscience team. In addition, Mr. Dillon is responsible for the overall technical quality of geologic and hydrogeologic-related work for TtCES. Mr. Dillon is a lecturer at Boston College in Environmental Geology, and is currently overseeing the thesis work of two graduate students on projects relating to geochemical groundwater modeling and surface/groundwater interaction. Mr. Dillon is also a Town of Norwell Massachusetts, Water Commissioner and Chairman of the Norwell Board of Health.

**Paul Dombrowski** is a Remediation Technical Leader at AECOM with 9 years of experience who specializes in the design, implementation, and oversight of groundwater and soil remediation projects. His areas of expertise include in-situ remedial technologies, groundwater geochemistry, chlorinated solvent site investigation, and Brownfields assessment and redevelopment. He is the Co-Leader of the AECOM Chemical Oxidation Technical Practice Group, and provides technical support for a number of AECOM remediation projects across the United States as well as Canada, Mexico, Australia, and Brazil. He attended Manhattan College in New York City where he earned bachelor's and master's degrees in Environmental Engineering. He is registered as a Professional Engineer in Massachusetts and Connecticut as well as serving on the Scientific Advisory Board for the AEHS East Coast Conference.

**Maureen Dooley** has over twenty five years experience in many aspects of environmental industry including project management, research and development, senior technical oversight, remedial design and laboratory management. Ms. Dooley's current position is the Northeast Region Manager for Regenesis. She is responsible for managing both business development and technical support associated with Regenesis bioremediation and chemical oxidation projects.. Education: M.S. Biology/Microbiology, University of Dayton, Dayton, OH; B.S. Biology, St. Bonaventure University, NY.

**Gregory Douglas**, Ph.D., has over 30 years of experience in the field of environmental chemistry. His expertise includes development and application of advanced analytical chemistry methods for the study of the fate and effects of organic contaminants and trace metals in soil, - water, waste water, sediment, and biota. He is particularly interested in the applications of environmental chemistry for site forensic investigations. He has published, presented and testified on the analysis, occurrence, distribution, and fate of petroleum contaminants in the environment. Dr. Douglas is experienced in the measurement and environmental chemistry of industrial chemicals and solvents, modern and persistent pesticides, insecticides and fungicides, PCB congeners and Aroclors, dioxins and furans, metals, organo-metallic compounds, petroleum-, natural gas-, coal-derived, and anthropogenic hydrocarbons in the environment. He has led numerous investigations of the occurrence and fate of contaminants in groundwater, aquatic and terrestrial environment and is currently the designated testifying expert on several petroleum hydrocarbon forensic investigations in soil, groundwater and marine/aquatic sediment. He is experienced in the use of chemometric methods to explore relationships among contaminated environmental samples and suspected sources, to differentiate contamination in

complex source settings, and to track the fate of chemicals in complex, contaminated environments.

**James R. Doyle**, Ph.D., obtained a B.Sc. in Honours Biology from Bishop's University in 1978, and received a M.Sc. in Environment and Management from Royal Roads University in 2002. He completed a Ph.D. in the Chemical and Environmental Toxicology programme at the University of Ottawa in 2012 and was a National Science and Engineering Council Post Doctoral Visiting Fellow at Health Canada in 2013. The focus of his research was to determine the role of soil ingestion in human health risk assessments of contaminated sites and exposure of Aboriginal and other communities to contaminants in soil. He was also involved in assessing the exposure of populations to contaminants found in indoor dust. In addition to his studies. Dr. Doyle has over 30 years experience in the nuclear, petrochemical and mining industries. He was a Principal and senior scientist at Jacques Whitford where he specialized in nuclear projects and environmental assessments pursuant to the Canadian Environmental Assessment Act. He has led project teams directed at remediating waste management storage at Atomic Energy of Canada Limited's (AECL's) Chalk River Laboratories (CRL) site and was responsible for hazardous material management at Syncrude Canada's oil sands mining and upgrading operations in Fort McMurray. Dr. Doyle obtained his Project Management Professional accreditation with the Project Management Institute in 1992. He has participated in international forums and technical committees on nuclear waste with the International Atomic Energy Agency and in research workshops with NATO. Dr. Doyle provides independent consulting services to AECL and other clients on an *ad hoc* basis.

**Latif Elçi** was born in Manisa, Turkey in 1952, and carried out his undergraduate studies at Aegean University in İzmir, in 1974. Elçi pursued graduate studies at Hacettepe University, in Ankara from 1981 to 1986 and received his Ph.D in analytical chemistry in 1986. On September, 1986 he joined as assistant professor the Faculty of Art and Science at Erciyes University, Turkey. Elçi was promoted to Assoc. Professor in 1988 and Professor in 1994. From 1994 to 2000, he directed the Science Institute (graduate school). In June 2000, he moved to his laboratory at Pamukkale University where he was dean of the Faculty of Art and Science until March 2007. Now, he is currently analytical chemistry professor and head of department in chemistry department at Pamukkale University. He carried out postdoctoral researches at Ruhr Uni.(1990-four months) and Munster Uni(2007-three months) as TÜBİTAK and DAAD Postdoctoral Fellows, and at UMass-Amherst-USA(1995-four months, 2007-six months and 2010-one year) as TÜBİTAK, Fulbright and TÜBİTAK Postdoctoral Fellows, respectively. Elçi's research interests involve extractive preconcentration methods of trace inorganic ions and organic compounds from various samples and their determinations by atomic spectroscopic and chromatographic techniques. His research, described in over 180 scientific papers. Prof.Dr.Elçi has trained more 30 graduate students and postdoctoral researchers in his laboratory.

**Will Elcoate** has over 25 years of experience in the environmental laboratory industry which includes every aspect of laboratory operations. With his background in laboratory operations, Will possesses significant experience in state and federal project management, understanding the need to balance programmatic compliance, data usability and cost, while meeting both client and regulatory expectations. With the EPA's increased attention and public concern on air quality, for the past seven years his focus has been on vapor intrusion, indoor and ambient air testing. He is a subject matter expert concerning the air testing industry, regulations, guidance, and has presented on a wide range of subjects including vapor intrusion, landfill gas, air methods and sampling techniques at conferences across the USA. Will's professional affiliations include the Interstate Technical Regulatory Council (ITRC) IAP Petroleum Vapor Intrusion Group and the Air and Waste Management Association (AWMA).

**Scott Ellinger** is a licensed professional geologist and has over 23-years experience. He works for the U.S. Environmental Protection Agency in Dallas, Texas. Scott is also an adjunct professor and teaches groundwater modeling at the University of Texas in Arlington, and teaches geology at Richland College in Dallas. Scott's work involves conducting hydrogeological evaluations and

studies, developing and reviewing groundwater models, groundwater contamination forensics, reviewing groundwater monitoring systems, and other related activities. Scott has conducted numerous regional and local studies of complex groundwater issues related to mining and mineral processing, landfills, and hazardous and non hazardous wastes sites. He has also provided technical support to develop federal rulemakings and reports to Congress, and represented EPA as a technical expert. He has a B.S. in geology from Texas Tech University, an M.S. in geology from West Texas A&M University, and has conducted additional post graduate studies in Environmental Engineering at George Washington University.

**Stephen Emsbo-Mattingly** is a senior scientist at the NewFields Environmental Forensics Practice in Rockland Massachusetts. He has twenty-five years of environmental chemistry and forensic investigation expertise. Mr. Emsbo-Mattingly specializes in the source identification of PCBs, PAHs, petroleum, tar, and chlorinated solvent products in the environment. This work is typically conducted in support of site investigations, risk assessments, and liability management.

**Brett Engard** is a project manager with GZA GeoEnvironmental, Inc., in Fairfield, New Jersey. He received his B.S. in Geology (2001) and M.S. in Groundwater Studies (2006) from the University of Kansas; while there he worked closely with the Kansas Geological Survey – Geohydrology and the Exploration Services Sections. Mr. Engard is a professional geologist in Kansas and California, and has previously worked for consulting firms in Kansas City, San Francisco, and New York City. Mr. Engard possesses extensive hydrogeologic knowledge and expertise in groundwater flow, contaminant plume characterization, conceptual site models, aquifer tests (pumping and tracer), and tidal influence studies, and can execute a wide array of hydrogeologic data collection activities in support of remediation planning. These skills have been applied to numerous sites with complex stratigraphy and geologic structure.

**Michael Erickson** has worked in the analytical testing industry, focused on organic chemistry analyses for more than 15 years. He spent more than ten years with Columbia Analytical Services in Washington State before moving across the country to Massachusetts to work for Con-test Analytical Laboratory where he has been the laboratory director for the last five years. He has extensive experience with sample preparation and clean-up methodologies, both GC and HPLC chromatographic separation and quantification techniques, and laboratory management. At Columbia Analytical he supervised the hydrocarbon GC, HPLC and HPLC/MS/MS departments for a number of years before starting and managing the cGMP division in support of pharmaceutical manufacturers. While at Con-test, he led their LIMS implementation, managed the client services group and is in charge of all quality control aspects for the laboratory which is ISO 17025 accredited. He holds a BS in Biology from Pacific Lutheran University and a MS in Aquatic and Fisheries Sciences from the University of Washington.

**Joe Fiacco** has a B.S in Earth Sciences from Norwich University and a M.S. in Earth Sciences from the University of New Hampshire. He has 20 years experience as an environmental consultant and specializes in high resolution characterization of both overburden and fractured bedrock contaminated sites. The majority of his experience involves the characterization and remediation of chlorinated solvent, petroleum hydrocarbon, and landfill sites. He has worked on contaminated sites on six continents, throughout the USA, and across New England.

**Myriam Fillion** was trained as a neurobiologist during her undergraduate studies at McGill University. She completed her MSc and PhD degrees in Environmental Sciences at the Université du Québec à Montréal, under the supervision of Dr. Donna Mergler, in a project on exposure to mercury through fish consumption in riverside communities of the Brazilian Amazon. Her thesis on the risks and benefits from traditional diet of this population focused on the neurotoxic effects of mercury and lead on the nervous system, while assessing the influence of omega-3 fatty acids and selenium. She is now a postdoctoral fellow at the University of Ottawa, under the guidance of Dr. Laurie Chan, where she works on exposure to environmental contaminants, food safety and food security issues in the Canadian Inuit population. Since her graduate studies, Myriam Fillion has been working on environmental health issues in an

interdisciplinary way, using an ecosystem approach to human health that integrates gender and equity issues. Following a participative approach, she has worked with communities that face environmental health challenges, to construct research questions and discuss the results with them, in order to promote health and wellbeing. She is involved in communities of practice in ecohealth in Canada, Latin America and the Caribbean, where she is involved in activities to strengthen research capacities and research excellence.

**Alyson Fortune** is a Senior Scientist with TerraTherm located in Gardner, Massachusetts. She holds a Bachelor's degree in Environmental Science from UMass-Amherst and a Master's degree in Atmospheric Science from UMass-Lowell. Ms. Fortune has over 15 years of involvement in the environmental industry, with varied experience and expertise including stationary source testing, vapor intrusion, vapor sampling, and laboratory analysis of vapor phase samples. Ms. Fortune has been invited to present technical papers and professional development courses at numerous conferences. At TerraTherm, Ms. Fortune is responsible for managing thermal remediation treatability studies and project laboratory interactions, conducting data quality reviews on laboratory data, maintaining complex field equipment monitoring systems (e.g. FTIR), and other data management functions.

**Kevin Frysinger** is a Consulting Geoscientist for Environmental Standards, a privately held 100 person environmental science firm headquartered in Valley Forge, Pennsylvania. With 17 years of project experience, Mr. Frysinger has considerable experience in managing environmental site investigation and remediation projects, developing chemical fate and transport models, conducting third-party field audits of environmental contractors, and creating three-dimensional models of geologic, chemical, and environmental data using Environmental Visualization System (EVS) software. Mr. Frysinger also has been the project manager for bioremediation projects in fractured bedrock. Mr. Frysinger received his Bachelor of Science in Geology from Juniata College and his Masters Degree in Hydrogeology from West Virginia University. Mr. Frysinger resides in Berks County, Pennsylvania.

**Steven Gaito** is a Senior Environmental Specialist with ARCADIS US. He joined ARCADIS in 2007 and has 13 years of environmental consulting experience and specializes in developing LNAPL management strategies. He is contributing to the 2013 update of ASTM LNAPL Guide E 2531-06. His current work focuses on developing LNAPL site conceptual models, mobility and recovery, and the evaluation and application of natural source zone depletion.

**Millie Garcia-Serrano** is a Deputy Regional Director at MassDEP, responsible for the management of Bureau of Waste Site Cleanup operations spanning 84 cities and towns, including the Cape and Islands. With over 26 years of combined private and public sector environmental protection experience, her areas of expertise include emergency response & extreme weather preparedness, hazardous waste site assessment and cleanup, risk assessment, brownfields redevelopment, regulatory / policy development and enforcement, natural resources damages and workforce succession planning. Millie has coordinated innovative and sustainable MCP site assessments and closure strategies for sites with contaminated soil, groundwater and sediment, facilitated complex federal, state & local regulatory compliance and permitting; and advocated for the promotion of sustainable remediation and renewable energy components at State c.21E and EPA Superfund sites. Millie is a Scientific Advisory Board member of the AEHS/UMass Annual International Conference on Soils, Sediments, Water and Energy, Team Leader for three Commonwealth of Massachusetts Brownfields Support Team initiatives, and the Commonwealth's Trustee Representative for the Buzzards Bay B-120 Bouchard Oil Spill NRD case. She has chaired the national Association of State and Territorial Solid Waste Managers Officials' (ASTSWMO) Federal Facilities Subcommittee and the Policy & Technology Focus. In June 2012, Millie accepted the prestigious New England Environmental Business Council Nicholas Humber Environmental – Energy Award for Outstanding Collaboration on behalf of MassDEP. Millie has a Bachelor of Science in Biology from the University of South Alabama in Mobile, AL and a Master of Public Health from Boston University in Boston, MA.

**Gregory Garvey** is a consultant specializing in toxicology, human health and ecological risk assessment, and vapor intrusion analyses. He has over 13 years of experience in assessing chemical exposures to biological systems and their potential adverse effects to those systems, and has provided both qualitative and quantitative risk assessment for human and ecological risk endpoints. These assessments have been used to support RCRA facility investigations and RI/FSs at CERCLA sites and other impacted properties (residential, industrial/commercial, recreational). Mr. Garvey has completed vapor intrusion assessments at a number of properties potentially impacted by petroleum releases working under both state and federal regulatory frameworks. As part of these investigations, he has provided toxicological expertise in developing risk-based concentrations for the inhalation exposure pathway.

**Patrick Gratton** received his Bachelor's of Science Degree in Civil Engineering from the University of North Carolina at Charlotte. Patrick has obtained his engineering intern license and is looking forward to gaining a Professional Engineering license this year. Mr. Gratton is currently a civil engineer at AECOM in Rocky Hill, CT. He has worked in the environmental industry for four years and has been working with AECOM for the past two.

He has worked on multiple contaminated sites in North Carolina, South Carolina, Connecticut and New York from brownfields, Manufactured Gas Plants to large industrial facilities. He has been involved in various aspects of remediation including remedial design, contractor oversight, management of field activities, report preparation, field investigations, data management, and post remediation management. He has been involved on a number of sites that have utilized in-situ treatment, excavation, demolition, and soil vapor extraction as various and combined means of remediation.

**Kelvin B. Gregory**, Ph.D, is an Associate Professor of Civil and Environmental Engineering at Carnegie Mellon University in Pittsburgh, Pennsylvania. His research explores the microbiology, ecology, and fundamental interactions between bacteria and their physical and chemical environment. Dr. Gregory has a BS degree in Biological Systems and Agricultural Engineering from the University of Nebraska and a PhD in Civil and Environmental Engineering from the University of Iowa. He studied microbial diversity and ecology at Woods Hole Marine Biological Laboratory and completed Post-doctoral studies at the University of Massachusetts Environmental Biotechnology Center. His current research interests lie in produced water management, environmental nanotechnology, and geologic carbon sequestration.

**Emese Hadnagy**, Ph.D., is a postdoctoral research and teaching associate at the Environmental Research Group at the University of New Hampshire. She has over 10 years of experience in the area of environmental contamination assessment and remediation and in water resources management, including both academia and the private sector.

**Ronald Harwood** is a Senior Geologist, Project Director and Executive Vice President at Excel Environmental Resources, Inc. located in North Brunswick, New Jersey. He received his Bachelor of Science Degree in Geology from the University of Rhode Island in 1990 and his Master of Science Degree in Geology from the University of Rhode Island in 1993. Mr. Harwood has over 19 years of experience in environmental consulting working with private and public sector clients. He is a Licensed Site Remediation Professional (LSRP) in the State of New Jersey whose experiences have included planning and implementing environmental investigations and remedial actions at a variety of sites ranging in size and complexity and involving a range of contaminants under various settings.

**Lucas Hellerich**, Ph.D., is a senior project manager at AECOM in Connecticut, with experience in contaminated site assessment and remediation, exit strategy development, litigation support, and contaminant transport assessment. His experience focuses on chromium and chlorinated solvent impacted sites and in situ remediation, primarily using reductants. His PhD involved hexavalent chromium fate and transport in the environment and he is a founding member of AECOM's Hexavalent Chromium Remediation Program.

**Yvonne E. Hennessey** is a partner at Hiscock & Barclay, LLP where she practices energy and environmental law. Yvonne supports oil and gas clients in the development of shale projects across New York State and in Pennsylvania. She provides counsel on a broad range of issues involving shale development including well permitting and project siting, compulsory integration, government regulations and compliance, civil and administrative enforcement, home rule and road use issues, litigation and government relations. Yvonne is a member of the New York State Bar Association Environmental Law Section's Executive Committee and is the President of the Northern District of New York Federal Court Bar Association. She was recognized by the New York State Bar Association in September 2010 as one of the "brightest young members" of the Environmental Law Section and, more recently, she was named to the 2013 edition of *Best Lawyers in America*.

**Gorm Heron, Ph.D.**, is Senior Vice President and Chief Technology Officer at TerraTherm, Inc. Dr. Heron has 23 years of experience in the environmental engineering field, with 16 years in design and management of in-situ thermal remediation projects. Based in TerraTherm's Bakersfield, CA office. From 1997-2004, Dr. Heron served as Principal Environmental Engineer with SteamTech Environmental Services, Inc. where he designed, oversaw and operated six major steam projects. Dr. Heron provides technical leadership and oversight in the design and application of In Situ Thermal Remediation (ISTR) and combined In Situ Thermal Desorption (ISTD)/Steam Enhanced Extraction (SEE), and SEE/Electro-Thermal Dynamic Stripping Process™ (ET-DSP™).

**Gordon Hinshalwood** is a Senior Professional with Antea® Group specializing in the delineation and remediation of soil and ground water contamination at sites impacted with industrial and petrochemical pollutants. He has 20 years of relevant experience in the environmental consulting industry. Dr. Hinshalwood has a BS from Rutgers University, a MS from New Jersey Institute of Technology, and a PhD from the City University of New York.

**Thomas J. Holden** is a senior remediation engineer at Haley & Aldrich with over 18 years of site characterization, remedy evaluation, design and construction experience addressing various contaminant types, site conditions and redevelopment scenarios. He earned a Bachelor of Science degree in Agricultural and Biological Engineering from Cornell University, and is a licensed professional engineer in California and Massachusetts.

**Anthony (Tony) L. Honnellio** has, for the last ten years, been the Radiation Program Manager/ER Health and Safety Coordinator for the U.S. Environmental Protection Agency, Region 1. He is a Radiological Emergency Preparedness (REP) Evaluator supporting FEMA for all New England nuclear power plant REP exercises, is an ISC instructor and has served as an ICS Safety Officer for a number of large responses/events including the 2004 Democratic National Convention, TopOFF III, hurricane Katrina/Rita and most recently for the BP and Kalamazoo River oil spill responses and responses to Hurricane/Tropical Storm Sandy, Irene and Lee. Preceding his current employment he worked as the Radiation Safety Officer for Niton LLC and the EH&S/RSO for CIS-US, Inc. Tony is a Veteran of the U.S. Navy and has a B.S. in Radiological Health Physics from the University of Massachusetts at Lowell. Tony was the Co-Chairman of EPA's national Emergency Response Worker Health and Safety Workgroup. He holds one U.S. patent for a Compton backscatter XRF radiation shield and has written articles on nuclear power plant security and nuclear history.

**David Howland** is the Regional Engineer for the Department of Environmental Protection (DEP) - Western Regional Office in Springfield, Massachusetts. Since the 1970s he has worked in progressively more responsible roles for the DEP from Field Engineer to Acting Regional Director. He has direct experience with DEP water and air quality programs and in 1993 and 2012 received the Governor's Award for Excellence in Public Service. He spent much of his career as a Deputy Regional Director where he managed program staff in the development of program plans, the issuance of construction permits and the initiation enforcement actions. Major accomplishments include: the implementation of a multi-media inspection program for the industrial sector, the

establishment of the watershed approach to regional water program decisions and the refinement of regional compliance and enforcement activities. In his role as Regional Engineer he manages cross agency activities on major projects/programs while serving on various committees on emerging issues and economic development. Mr. Howland holds a BS degree from St. Lawrence University, a MPH from the University of Massachusetts in Amherst.

**J. Andrew Irwin**, PE, LSP, has over 30 years of professional consulting experience involving chemical and environmental engineering. He has worked with private industrial and commercial companies handling a wide range of environmental issues from process design and process safety for hazardous chemical operations and permitting for environmental compliance, to assessment and remediation of spills, historical releases, or disposal facilities. Mr. Irwin is a Registered Professional Chemical Engineer in Massachusetts and a Past President of the Licensed Site Professional Association (LSPA).

**Rabah M. A. Ismail** was born in Jordan in 1981. She graduated from Science College at Jordan University of Science and Technology, Jordan, in 2004. She received her M.Sc. in Civil Engineering from the National University of Malaysia in 2006. She worked as teaching and Associate Researcher at National University of Malaysia and University Tenaga Nasional, Malaysia. Currently she is an Associate Researcher at Faculty of Engineering, Najran University, Saudi Arabia. Rabah Ismail is a PhD student at University Tenaga Nasional Malaysia. Her PhD is development of electromagnetic sensors for evaluation of soil contamination.

**Robert L. Jaffe**, Ph.D. currently is the Director of The Tetramitus Foundation in Tannersville, NY, and previously the Director of the Environmental Toxicology Laboratory in Long Island City, NY (<http://www.particletox.org> ). Dr. Jaffe has developed a cost-effective screening test for assessing the presence of toxic agents in drinking-water and source waters. The TetFlag Toxicity Assay is based on the growth inhibition of *Tetramitus* flagellates which are exposed to both toxic whole particles and to mixtures of soluble toxic agents. A postdoctoral appointment at Brandeis University with Dr. Chandler Fulton resulted to his introduction to *Tetramitus* flagellates. Dr. Jaffe obtained his toxicology and epidemiology training at the Department of Community Medicine at the Mt. Sinai School of Medicine, under the guidance of Drs. William J. Nicholson and Irving J. Selikoff. His most current research has established a linkage of whole particle concentrations in Greene County (NY) tap-water to small area cancer incidence in Greene County, as referenced by the New York State Department of Health Cancer Mapping Program ([https://apps.nyhealth.gov/statistics/cancer/environmental\\_facilities/mapping/map](https://apps.nyhealth.gov/statistics/cancer/environmental_facilities/mapping/map) ).

**Debra Kaden** brings over 25 years of experience in toxicology and environmental health sciences with particular emphasis in the area of air toxics and community exposure to air pollution. Debra's expertise includes critical reviews of the toxicological effects on human health of many of the volatile organic compounds potentially associated with emissions from gas drilling processes, including benzene, acrolein, and formaldehyde. She has also evaluated the scientific literature relevant to air pollution resulting from mobile sources, as well as pollution that may result from complex processes such as the establishment of shale oil and gas well sites. Her experience in the field of exposure sciences issues allows an appreciation of spatial and temporal influences on potential community exposures. Dr. Kaden is active in the International Society of Exposure Science, where she currently chairs the Strategic Planning and Outreach Committee, as well as the Society of Risk Analysis, where she is Past-President of the New England chapter. She currently works as a Senior Manager at ENVIRON International Corporation, and previously led the air toxics research program at the Health Effects Institute. Dr. Kaden holds a Ph.D. in Toxicology from the Massachusetts Institute of Technology, and has post-doctoral research experience in cancer research from Harvard Medical School and the Dana Farber Cancer Institute.

**Russell Keenan** is Vice President and Principal Toxicologist at Integral Consulting, Inc., a national science and engineering firm providing multidisciplinary services in the fields of health, environment, technology and sustainability. He has 25 years of experience as a biologist and

toxicologist and is regarded as an expert in the risk assessment of PCBs, dioxin, and mercury, and for the development of probabilistic risk assessment methods. Dr. Keenan is noted for his work in evaluating the human health and ecological risks associated with contaminated aquatic environments at many of the major environmental sites in the U.S. He serves on the AEHS Scientific Advisory Board and is also an active member in the Society of Toxicology, the Society for Risk Analysis, and the National Council for Air & Stream Improvement. He holds a B.S. in Biology from Bates College and a Ph.D. in Environmental Biology from Duke University.

**Maryam Khoshnoodi** is a research assistant and a graduate student in the Department of Chemical and Biological Engineering, at the University of British Columbia. She has been working on an industrial project dealing with reclamation of mining generated effluent. Her Ph.D thesis topic is: "microbes involved in metal removal in passive treatment systems". Mechanisms of heavy metal removal in biochemical reactors are investigated with specific focus on arsenic removal. Her work entails field and laboratory studies using novel interdisciplinary research tools such as microbial culturing, molecular biology techniques (metagenomics) and mineralogical analysis. Ms. Khoshnoodi has received her B.Sc and M.Sc in Microbiology, with concentration of Environmental Microbiology.

**Karen Kinsella** is a technical specialist at GZA GeoEnvironmental, Inc. in Glastonbury, Connecticut. She received her Ph.D. in soil chemistry and microbiology from the University of Connecticut, and her M.S. in analytical chemistry from Central Connecticut State University. Dr. Kinsella has more than 35 years' experience in the energy, construction, analytical, and radionuclide sectors. At GZA, she helps project teams optimize contaminant remedies by understanding degradation mechanisms. In addition to chlorinated solvent remediation, her recent projects include remediation of arsenic, heavy metals, PCBs, oily drill cuttings, and acid tar.

**Andrew Kirkman** is the lead LNAPL Technical Specialist for BP America located in Naperville, IL. Andrew joined BP in 2012 and currently supports LNAPL related site remediation, educational advocacy and research efforts. Previously, was the Global LNAPL Technical lead for AECOM Environment. Andrew worked as a consultant at AECOM for 14 years. Andrew focused on characterization and remediation of railroad, manufactured gas plant tie treatment facilities petroleum terminals and refineries in North America as well as Thailand, Indonesia, Australia, New Zealand, Brazil, Europe and United Arab Emirates. Andrew has led and participated in multiple industry advocacy efforts related to LNAPL, these include: 1) chairing the ASTM task group that created the standard for estimation of LNAPL transmissivity and the task group that is revising the ASTM Standard guidance document related to LNAPL Conceptual Site Models and Remediation Strategies; 2) generating publications for Applied NAPL Science Review, American Petroleum Institute, and Groundwater Monitoring and Remediation and; 4) presenting training sessions and technical discussions at regulatory agencies, conferences and for industry on topics such as use of NAPL transmissivity, LNAPL baildown tests, core analyses and laser induced fluorescence technology and improved LNAPL conceptual site models. Andrew has supported ITRC through publication review and educational materials since 2008 and became an ITRC trainer in 2012. Andrew earned a bachelor's degree in Geology and Geological Engineering from the University of Minnesota in Minneapolis, Minnesota in 1998.

**Paul Kirshen**, Ph.D., has 30 years of experience serving as Principal Investigator of complex, interdisciplinary, participatory research related to water resources and coastal zone management and climate variability and change. He is presently Research Professor, Environmental Research Group of Department of Civil Engineering, and Institute for the Study of Earth, Oceans, and Space, University of New Hampshire, Durham, NH. Recent and ongoing relevant research includes developing adaptation strategies for urban infrastructure, investigating the impacts of increased coastal flooding on particularly vulnerable populations and adaptation strategies, and adaptation planning for multi-purpose, multi-objective river basin systems. He is a Lead Author for the UN Intergovernmental Panel on Climate Change and the US National Climate Assessment. He also serves on several state committees and commissions on climate change adaptation. He

has over 50 published journal articles on these topics as well as many book chapters and reports. He received his ScB in Engineering from Brown University and his MS and PhD in Civil Engineering from MIT.

**Mark Kluger** is a graduate of Johns Hopkins University with a focus in chemistry, physics and material sciences. Mark has experience with field analytical and data acquisition instrumentation, site characterization, surface geophysics, multi-phase fluid flow, process optimization, and soil and groundwater remediation procedures and technologies, including bioremediation, chemical oxidation and heat. In February 2001, Mark founded Dajak<sup>®</sup>, LLC, a company that provides business development services to firms with innovative environmental characterization and remediation technologies. Mark also provides technical guidance to these companies in the areas of marketing, industry trends and remedial solutions. Mark is a member of the Interstate Technology and Regulatory Council and the Sustainable Remediation Forum.

**Kingsley Kodom** is a Nuclear Geophysicist who applies nuclear physics techniques to the geosciences. Kingsley holds both Master's and Bachelor's degree in Physics and is currently pursuing his PhD in Nuclear Physics at Department of Physics, KNUST, Ghana, with much interest in Electromagnetic Pollution and its effects in the Environment due to RF Radiations. He is the author of several articles in the field of Heavy Metal Pollution in the Environment, Geostatistical Survey, as well as general environmental pollution assessment. Mr. Kodom has attended couple of international conferences and is a member of different bodies worldwide, and has keen interest in Environmental Physics applications, Nuclear techniques in energy production, XRF Techniques, X-ray & Radiation Physics, multidisciplinary research in investigating Environmental Pollution, and Numerical modelling as well as computational skills.

**Stephen Koenigsberg** brings more than three decades of environmental experience to his role as Vice President and Director of Advanced Remediation Technologies for Brown and Caldwell in Irvine, CA. Steve is known for his work in the development and application of innovative in-situ and on site treatment protocols and has authored or co-authored more than 175 technical articles, four books and four international patents focusing on remediation and environmental biotechnology. In 1994 he co-founded Regenesys where he was involved in the formulation and development of several products which have been broadly applied worldwide. Over the last decade, Dr. Koenigsberg has helped define the emerging field of expedited site resolution with conventional and advanced technologies. In 2004 he was the co-recipient of a Wall Street Journal Technology Innovation Award and in 2010 received a Lifetime Achievement Award from the Association for Environmental Health and Sciences Foundation (AEHS). Steve is an Adjunct Professor at the California State University at Fullerton and serves on the Dean's Advisory Council where he was also Chairman for three terms. He received a B.A. from the City College of New York (CCNY) and an M.S. and Ph.D. from Cornell University.

**In Chul "Charlie" Kong** is a Professor at Dept of Environmental Engineering, Yeungnam University, located in South Korea. He is an environmental microbiology subject matter expert for teaching and research in university. His specific research areas are followings: acute toxicity testing for environmental samples, biomonitoring using recombinant bacteria, anaerobic biodegradation etc. In Chul has a master's degree in Biochemical Engineering from the University of Iowa, Iowa city and a doctoral degree in School of Applied Biology from Georgia Institute of Technology, Atlanta. He also had post-doc in University Florida and US. EPA Athens Lab. He did research as visiting professor at Oak Ridge National Lab., Kansas State University, Washington University in St. Louis.

**William Kostedt IV**, PhD, PE completed a BS in Chemical Engineering at Trinity University, then taught high school for 2 years before completing a PhD in Environmental Engineering at University of Florida. After graduation, William accepted a position at GE Global Research within the Environmental Technology Laboratory. At GE, William has focused on evaluation and implementation of remediation technologies as well as development of advanced water treatment techniques for produced water from steam-assisted gravity drainage and shale gas operations.

High TDS produced water from shale gas operations presents unique challenges for treatment including the presence of elevated naturally occurring radioactive material (NORM). Process development work at GE has included bench-scale evaluation of options and scale-up of the most promising candidates.

**Xiah Kragie** is an environmental health engineer with 5 years of experience in interdisciplinary fields spanning multimedia contaminant modeling, human health risk assessment, hydrologic engineering, geochemistry, and international development. Her particular area of expertise is merging these multiple disciplines for a contextual analysis of environmental health risk. She has built industrial-source air dispersion models for inhalation exposure assessment and estimated the associated risk. Her most recent graduate work focused on incidental soil contamination from mineral mining and the development of new field detection methods. Ms. Kragie has worked on environmental contamination and development projects across Asia and Latin America including during her service as a Peace Corps volunteer in Honduras. She is practiced in translation of science for lay audiences and cross-cultural communication with emphasis on participatory approaches.

**Matthew Lahvis** began his career at the New Jersey District of the U.S. Geological Survey in 1989 where his research focused on quantifying the fate and transport of petroleum compounds in the unsaturated zone. Matt also served as an adjunct professor in the Civil Engineering Department at Drexel University from 1995-1999. In 2000, Matt joined Shell Projects and Technology where he serves as Team Lead for the Soil and Groundwater R&D Program. Matt has published extensively on vapor transport in the unsaturated zone and has been serving as an Associate Editor for the Ground Water Monitoring and Remediation Journal since 2005.

**David Lampert**, PhD, PE, is an Energy Efficiency & Renewable Energy Postdoctoral Fellow at Argonne National Laboratory where he is studying the water quantity and quality impacts of biofuel feedstock production. He graduated *Magna Cum Laude* from Oklahoma State University with a degree in Civil Engineering before receiving his Masters and PhD degrees in the Environmental and Water Resources Engineering Program at the University of Texas at Austin. He is the author of 7 journal publications with over 100 citations and a book chapter on the design of caps for remediation of contaminated sediments. Dr. Lampert holds a Professional Engineering License in the State of Texas and has served as a special modeling consultant on many remediation projects across the country. His research interests include the energy-water nexus, fate and transport modeling, contaminated sediment management, and the development of open-source software for environmental applications.

**James Lape** is a human health risk assessor with 24 years of experience in the health and environmental science fields. He is active in all aspects of quantitative human health risk assessments, including fate and transport modeling, exposure assessment, risk characterization, and uncertainty analysis. Projects have included sites under CERCLA, RCRA and Brownfield programs as well as product stewardship under various state and federal programs. His expertise in air toxics has led to opportunities to provide litigation support, including expert testimony, in both state and federal venues. Mr. Lape has been very active in the issue of vapor intrusion, having conducted modeling of vapor movement and indoor air concentrations using existing or customized models, development and review of soil gas and indoor air monitoring programs, human health risk evaluations, and provided seminars on the subject to various professional audiences. He also provides risk communication to scientific and layperson audiences and serves as the technical lead in negotiations with regulatory agencies on behalf of clients.

**Minh Le** is the Vice President of C3 Environmental Limited. He graduated from the University of Waterloo in 1993 with a degree in Civil Engineering. He has 20 years of experience in site remediation, Brownfield redevelopment, evaluation of remedial alternatives and development of Remedial Work Plans. He specializes in the design and application of innovation remediation technologies including groundwater barrier/containment, Funnel-and-gate systems, in-situ

chemical oxidation remediation and deep/complex excavation. He is an active advocate of various environmental associations and institutions including Ontario Environmental Industry Association, Canadian Brownfields Network, Canadian Water Network, Canadian Geotechnical Society, Deep Foundation Institute, Ontario Centres of Excellence and University of Waterloo.

**Patrick Lewis** is a Senior Scientist, and co-founder of Defiant Technologies. He was the lead scientist on Defiant Technologies' FROG-4000™ system that measures VOCs in water, soil and air. Previous to his work at Defiant Technologies, Mr. Lewis worked at Sandia National Laboratories for 12 years developing and testing micro-analytical systems. He has developed other systems for detection of toxic industrial chemicals, chemical weapons, explosives and interfering chemicals. Mr. Lewis has managed several programs for DOD, DHS and other Federal agencies. In addition, he has managed GC labs both for Sandia National Labs Environmental Restoration Project and previous commercial analytical chemistry labs. Mr. Lewis holds 9 patents in "lab-on-a-chip" technology. He has expertise in many analytical techniques for organic compound analyses including: purge and trap GC/MS analyses, liquid-liquid extractions, soxhlet extraction for solid samples, TCLP extractions, SVOC analysis by GC/MS, pesticides, PCBs, BNAs, herbicides, and various other GC analyses. Education: Bachelor of Science, 1990, Physics, University of Texas, Austin.

**Eric Litman** is an environmental scientist at the NewFields Environmental Forensics Practice in Rockland Massachusetts. He has thirteen years of environmental chemistry experience specializing in analytical method development, forensic data quality assurance and technical project management. This work is performed in support of forensic site investigations, liability management and natural resource damage assessments.

**Derek R. Lovley** is a Distinguished Professor in the Department of Microbiology at the University of Massachusetts. Research in his laboratory focuses on anaerobic microbial processes that impact the natural cycling of carbon and metals in soils and sediments, bioremediation of hydrocarbon and metal contamination, and novel bioenergy strategies that involve microbe-electrode interactions and conversion of wastes to methane. These topics are addressed with a systems biology approach that incorporates genome-scale metabolic modeling, functional genomics, biochemistry, physiology, genetic engineering, and environmental meta-omic studies. Derek Lovley received his Ph.D. in Microbiology from Michigan State University and was a postdoctoral researcher at the Anaerobe Laboratory at Virginia Tech prior to joining the U. S. Geological Survey as a Project Chief in their National Basic Research Program in 1984. He moved his laboratory to the Department of Microbiology at the University of Massachusetts in 1995 where he served as department head from 1997-2004 and now serves as Director of Environmental Biotechnology and as an Associate Dean for the College of Natural Sciences. Dr. Lovley has received many awards including Popular Science's 'Best of What's New in Environmental Technology', as well as the Proctor and Gamble Award in Applied and Environmental Microbiology, the Annual International Conference on Soils, Sediments, and Water Life Achievement Award, and the Institute for Scientific Information's 'Most Highly Cited' (H-factor 102). His research has received substantial coverage in the popular press. He was featured in Time magazine's profile of top innovators in environmental science and recently was also cited in Time for one of the top 50 inventions for 2009. He has more than 300 publications, edited the book Environmental Microbe-Metal Interactions, and has been awarded several patents, including patents for microbial nanowires, microbial fuel cells, and uranium bioremediation.

**Ann Lowery** is the Deputy Assistant Commissioner at the Massachusetts Department of Environmental Protection (MassDEP) for the Bureau of Resource Protection. The Bureau administers water focused programs to protect wetlands and waterways, ensure reliable and effective drinking water supply and wastewater treatment, monitor water quality and administer the state revolving loan funds for water infrastructure. Her current work focuses on water related regulatory and policy issues, including energy and water management and climate change. She has previously served in a variety of positions at the agency including Chief Presiding Officer of the Office of Appeals and Dispute Resolution, Director of the Office of Enforcement, and Senior

Counsel within the Office of General Counsel. She is a graduate of Reed College, Northeastern University School of Law, and Harvard's Kennedy School of Government.

**Wendy Luce** is an environmental chemist with CB&I in Canton, Massachusetts. She has 14 years of experience in site investigation and remediation with a focus on assessing data quality and the environmental impacts of site contaminants at a wide variety of federal facilities and commercial-industrial sites. Much of her work has involved developing sample design programs and project data quality objectives based on federal and state requirements and collaborating with risk assessors to ensure project data will be of sufficient quality and quantity to support necessary risk evaluations. She currently works at sites in New Hampshire and Maine but has extensive experience throughout New England and across the United States.

**Mark A. Maddaloni** has been employed as an EPA Region II toxicologist since 1991 and currently holds the position of Regional Risk Assessment Coordinator in the Office of the Regional Administrator. Prior to his employment at the EPA, Dr. Maddaloni worked as a clinical toxicologist at the New York City Poison Control Center. He currently serves on the New York City Department of Health's Institutional Review Board (IRB) and the New Jersey Department of Environmental Protection's Science Advisory Board. Dr. Maddaloni is a Diplomate of the American Board of Toxicology and a member of the Society of Toxicology. Dr. Maddaloni received a Dr. P.H. in Environmental Health Sciences from Columbia University, an M.S. in Toxicology from St. John's University and a B.S. in Pharmacy from Long Island University. His doctoral dissertation investigated lead bioavailability through the direct measurement of soil-borne lead absorption in adult human subjects.

**Ben Martich** is a senior scientist with Geosyntec Consultants in Anchorage, Alaska. Mr. Martich has 17 years of experience in environmental consulting with particular focus on site characterization and water quality. For the past eight years, he has managed characterization and remedial actions at contaminated sites where vapor intrusion represents a primary exposure risk. He is a current member of ITRC's Petroleum Vapor Intrusion Team, and he is engaged in research of vapor intrusion in arctic and subarctic climates with staff from the University of Alaska Fairbanks.

**John M. Mateo** is President of Blue Lightning Underground Enterprises, LLC (BLUE), an operating company of Resource Renewal, LLC in Moorestown, New Jersey, USA. Mr. Mateo has more than 30 years of professional experience in hazardous waste and natural resource consulting, environmental site assessments, investigations, and remediation projects located throughout the United States. Mr. Mateo holds a B.S. and M.S. from Rutgers University in Environmental Science.

**Amanda Maxemchuk** is an environmental scientist with nearly 20 years of multi-disciplinary technical experience performing ecological and environmental assessments. She has earned a B.S. in Environmental Science from Rutgers University and an M.S. in Marine Biology from the Virginia Institute of Marine Science. Ms. Maxemchuk has experience conducting ecological risk assessments for both aquatic and terrestrial habitats, including ecological site characterization and exposure modeling; site investigations at more than 65 Superfund, RCRA and other hazardous waste sites, including mining, munitions, industrial and MGP sites clients; benthic macroinvertebrate assessments; toxicity testing; and reviews of U.S. Army Corps of Engineers (USACE) planning tools and decision documents. Much of her work has involved the use of indices and index models for assessing current conditions or projected changes in conditions. Ms. Maxemchuk has worked for non-profit organizations, consulting, and academia and has an understanding of issues of ecological concern from a variety of perspectives. She has also been involved with several research and development projects, including the development of spatially explicit tools and approaches. Most recently, Ms. Maxemchuk is currently part of a team that is developing of a tool to assess environmental vulnerability that can help minimize risks for energy clients trying to identify the best lease areas or locations within lease areas to site a well pad.

**Rick McGregor**, M.Sc., CGWP, P.Geo. has over 23 years' experience in groundwater and soil assessment and remediation and has worked in over 30 countries including Canada and the United States. Rick holds a M.Sc. from the University of Waterloo in hydrogeology and geochemistry and is a Certified Ground Water Professional in Canada and the United States. Rick's professional experience includes tenures at the Canadian government's Wastewater Technology Centre as a research hydrogeologist and geochemist followed by time consulting and remedial contracting. Rick has served on numerous Canadian and international technical advisory committees and he has authored over 40 technical papers on the remediation of groundwater.

**Michael Miller**, Ph.D., is an environmental chemist who specializes in bioremediation as well as other technologies for remediation of contaminated soil and groundwater; development and evaluation of sustainable remediation approaches; evaluation of the fate and transport of organic and inorganic contaminants in soil, water, and air; vapor intrusion evaluation and mitigation; and environmental statistics. He has been with CDM Smith since 1990 where he is currently the Remedial Technologies Sub-Discipline Leader. He is an active member of the Sustainable Remediation Forum (SURF), and is the co-chair of SURF's Academic Outreach Initiative. B.A., Chemistry (Physics minor), Swarthmore College, Swarthmore, PA, 1981.M.S., Physical Chemistry, Cornell University, Ithaca, NY, 1983.Ph.D., Physical Chemistry, Cornell University, Ithaca, NY, 1986. Postdoctoral Fellow, Soil Microbial Biodegradation, Laboratory of Prof. Martin Alexander, Cornell University, 1987-1990.

**Jorge Montoy** is an Engineer working for Sovereign Consulting out of Robbinsville, NJ. He has over 7 years of experience in remediation, including pilot testing, remedy selection, remedial design, system construction, operation, and optimization. His expertise includes in situ remediation including SVE, AS, multi-phase extraction, chemical oxidation, enhanced bioremediation, thermal treatment, and barrier walls, as well as water and wastewater treatment.

**Peter Murray** is a Regional Sales Manager for Geotech Environmental Equipment, Inc. based in Denver, Colorado. He received a BA in Geology/Geography from the University of Maine at Farmington, in 1984 and a Masters in Urban and Regional Planning from the State University of New York at Albany in 1986. Peter was a consulting hydro geologist from 1986 through 1998. His specialties included the assessment and remediation of contaminated soil and groundwater. Since then, Peter has been involved in the environmental equipment business and has sold equipment in North America, Asia and Europe. Geotech manufactures and distributes a variety of equipment used in the groundwater and surface water industries. Peter runs the Northeast Sales and Service Center for the company, in Winooski, Vermont. His territory includes the northeastern United States and several eastern Canadian provinces, including Quebec.

**Jonathan Myers** has a Ph.D. in Geochemistry plus 30 years of environmental consulting experience. His specialties include geochemical modeling, environmental forensics, natural attenuation investigations, and the use of geochemical evaluations to distinguish between contamination versus naturally high background concentrations of elements in sediment, soil, groundwater, and surface water. Dr. Myers has authored over 30 peer-reviewed research papers and book chapters, and has taught short courses on geochemical and environmental forensic techniques.

**Michael Nalipinski** works in the U.S. Environmental Protection Agency's (EPA) New England Regional Office in the Emergency Planning & Response Branch. He has been a Federal On Scene Coordinator since 2004 and is responsible for leading the federal response actions to hazardous material and oil spills, conducting removal actions at abandoned waste sites, and providing support at federally-declared disaster incidents. Since 2005, he has been the Regional Bio Watch Coordinator. Some of Mike's notable past response efforts include the Planning Section Chief during Hurricanes Katrina/Rita, the Incident Commander (IC) for the Danversport Explosion in November 2006, the IC for the Danbury Anthrax Incident in September and December 2007, and was recently deployed to the Democratic National Convention. Mike has

worked in EPA's Boston, Philadelphia, and Honolulu offices within the Superfund Program since 1986. He graduated from The Pennsylvania State University with a Bachelor of Science degree in Environmental Resource Management. Mike is also a certified FEMA ICS 300/400 Instructor.

**Michael Nigro** has a B.S. in Geology from Union College and has been a geologist with Environmental Resources Management (ERM) since 2004. He has 11 years of professional environmental and consulting experience focused in the management of investigation and remediation projects. In addition, Mr. Nigro performs a wide variety of environmental activities including design and construction of soil and ground water sampling and remedial programs. Mr. Nigro has also been successful in negotiating, on the clients behalf, with federal, state, and local regulatory agencies.

**Christa Nunn** has worked for Conestoga-Rovers and Associates for 5 years. She is responsible for preparation and setup of the treatability studies on groundwater and soil samples. The treatability studies include chemical oxidation, enhanced bioremediation, and solidification and stabilization. She is also responsible for several analyses including PCR and other Microbiology analyses, UV/Vis spectroscopy, GC and GC/MS spectroscopy, metals analysis via ICP-OES, Kjeldahl nitrogen analysis, pH measurement, and various titration determination methods. Much of this work is in support of the treatability studies that are performed in the laboratory in Niagara Falls. Christa is also responsible for assisting the Niagara Falls Office with the Quality System, including performing biannual internal audits and follow up with any nonconformances related to Quality.

**Joseph O'Connell**, ScD, PE is a Strategic Director at Cardno ERI. With over 33 years of professional experience he has been the principal engineer for designing, permitting, installing and operating a variety of remediation systems. Prior to entering the environmental field, Dr. O'Connell served in technical and managerial positions for Kaiser Aluminum and Chemical Corporation before leaving to start his own firm. The work at Kaiser involved not only the design and operation of equipment to manufacture HF, chlorine, caustic soda, phosgene and isocyanates, but also negotiations with the EPA regarding a consent decree for the impoundment of red mud and sulfate residues from chemical operations. More recently Dr. O'Connell has acted as president of FarBest Chemical Corporation, a manufacturer of specialty chemicals. He has been associated with Environmental Resolutions as a founder and principal engineer since co-founding the company in 1990. The environmental systems installed include air sparging, vacuum extraction, pump and treat, shoring and excavation, bioremediation and fixation. Contaminants range from chlorinated hydrocarbons to gasoline-range hydrocarbons to metals. He worked with researchers at UC Davis in California to develop bio-culture, adapt the fluidized bed bioreactor to handle the slow growing biomass, and develop the overall design and control features of the bioreactors. Dr. O'Connell studied at MIT where he received bachelors, masters and doctorate degrees in Chemical engineering.

**Tracy O'Fallon** is a Principal Hydrogeologist at ARCADIS U.S., Inc. in Manchester, Connecticut. She obtained a BS in Geology from Northeastern University in 1993, and an MS in Hydrology at The New Mexico Institute of Mining and Technology in 1996. With more than 17 years in consulting services, she specializes in quantitative hydrogeologic analysis with a focus on groundwater flow and solute transport modeling in support of remediation projects, litigation, and property development for Sites located throughout the United States. Tracy is also a registered Professional Geologist in the State of California.

**Jim Okun** is a Principal at the environmental consulting firm O'Reilly, Talbot & Okun Associates, Inc. He has a BS degree in Chemistry and an MS degree in Toxicology from MIT and is a Massachusetts Licensed Site Professional. He conducted post-graduate research on the environmental fate of PCBs and pesticides at the University of Hawaii, where he had a view of three waterfalls from his laboratory window. At USEPA Region 1 in Boston, he was the New England PCB coordinator and the agency's first project manager on the New Bedford Harbor PCB Superfund Site. He currently serves as the Chairman of the Connecticut River Watershed

Council; is a past elected member of the Ellington, Connecticut Board of Education; and was a legislatively appointed member of the Connecticut Low-Level Radioactive Waste Advisory Committee.

**Mary O'Reilly**, PhD, CIH, CPE, received her doctorate from the University of Michigan in Human Anatomy and Cell Biology and did her post-doc in viral-chemical co-carcinogenicity at Upstate Medical University in Syracuse, NY. She has worked as an environmental toxicologist, an industrial hygienist and an environmental scientist at Syracuse Research Corporation, NYS Department of Labor and NYS Department of Transportation, respectively. She currently works part-time as an industrial hygienist for a concrete company and is president of ARLS Consultants, Inc. She is a certified industrial hygienist (CIH), a certified professional ergonomist (CPE) and a fellow of the American Industrial Hygiene Association and is on the faculty of the SUNY School of Public Health and Findlay University in Ohio. She has taught Environmental Physiology, Industrial Hygiene, Occupational Ergonomics and is currently teaching Industrial Ecology and Environmental Science in the business program at Empire State College. She is on the advisory board for the Institute for Health and the Environment and the board of directors for Workplace Health Without Borders (WHWB) and serves on the Occupational Health Clinic Oversight Committee (NYS), the Z10 Occupational Health and Safety Management System Standard (ANSI), the Risk Assessment, Ergonomics and Standards Advisory Steering Committees (AIHA). Her publications and research interests include environmental health, risk assessment, ergonomics, phytoremediation and industrial ecology.

**Larry Pannell** is a Licensed Professional Geologist and a certified Project Management Professional with 25 years of experience in the environmental consulting industry. His professional career has focused on providing solutions to environmental issues at federal facilities throughout the New England and Mid-Atlantic regions. He has completed numerous projects for the United States (US) Coast Guard, US Navy, US Air Force, and US Army Corps of Engineers. He has extensive experience managing environmental investigations and remediation of soil and groundwater contaminants under federal programs, including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Safe Drinking Water Act (SDWA), and the Military Munitions Response Program (MMRP). Mr Pannell is a Senior Project Manager at Watermark headquartered in Lowell MA.

**Paul Pepler** is an Assistant Project Manager with GZA GeoEnvironmental, Inc. He obtained both his BS in Environmental Science and his MS in Civil Engineering from the University of New Hampshire. His past research has included topics in ecology, biogeochemistry, and water treatment. His current research interests include biological and biogeochemical degradation of petroleum hydrocarbons and chlorinated solvents in groundwater systems, respectively.

**R. Paul Philp** is Professor of Petroleum and Environmental Geochemistry at the University of Oklahoma. He received his Ph.D. from the University of Sydney, Australia in 1972 and a D.Sc. from the same University in 1998 on the basis of his research in geochemistry over the past 20 years. Prior to starting at the University of Oklahoma in 1984 Dr. Philp was a Principal Research Scientist, C.S.I.R.O., Sydney, Australia. His current research interests center around petroleum, environmental and forensic geochemistry with an emphasis on molecular and isotopic characterization of oils, gases, rock extracts and contaminants for the purposes of source determination, characterization of depositional environments, maturity, biodegradation and for correlation purposes. Much of the current research activity in the area of forensic geochemistry involves the use of stable isotopes for the purposes of fingerprinting contaminants in the environment for correlation purposes; source determinations and evaluating whether or not natural attenuation is active. This approach is particularly valuable in the case of refined products or single component contaminants when the more traditional GC and GCMS techniques are of little or reduced use. He has authored or co-authored over 380 articles and books and has lectured extensively on petroleum and environmental geochemistry in SE Asia, South America, Europe and Africa.

**Jaana Pietari**, Ph.D., a Managing Scientist in Exponent's Environmental Sciences practice, provides technical consulting on and manages projects that involve various chemical constituents, ranging from chlorinated solvents and petroleum to inorganic constituents. She studies various environmental media, including soil, groundwater, and sediments, in varied settings, from urban sediments to residential properties. Dr. Pietari has experience in environmental forensic evaluations of contaminant sources of sediments and groundwater, particularly involving polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and chlorinated ethenes, and in providing technical support for remediation of chlorinated solvents from soil and groundwater. Additionally, she is also experienced in evaluation and application of innovative field screening devices for assessment of contaminated sites.

**Renée Lagassé Pineo** holds a bachelors in Biology and a master's degree in Environmental Management and Policy. She has three years of experience in the management of the design, construction, operation, sampling, and demobilization of thermal remediation projects and has four years of experience in the management of initial response actions and subsequent remedial activities to hazardous material releases.

**Shannon Pociu** is an Environmental Analyst 3 in the Remediation Division of the Connecticut Department of Energy and Environmental Protection where she has worked for the past 13 years overseeing the investigation and remediation of contaminated sites, including two high profile State Superfund Sites. Prior to her employment with the CT DEEP, she worked for 4 years in private consulting with varied work including site assessments, underground storage tanks, and environmental impact evaluations. She holds a Master's of Science degree in Environmental Science from the University of New Haven and undergraduate degrees in Renewable Natural Resources and Geography from the University of Connecticut.

**Jovan Popovic** is a fourth-year graduate student in Clemson University's Environmental Engineering and Earth Sciences department. He earned his B.S. in Molecular and Cellular Biology from the University of Illinois at Urbana-Champaign in 2009 where he performed research on sustainable bioremediation of chlorinated ethenes. His current research focus area deals primarily with the study of unbalanced fermentative metabolism in *Clostridium beijerinckii*, with the main goal of overproducing next-generation biofuels and increasing consumption levels of hemicellulosic biomass without genetic modification. In addition, he focuses on the enrichment, isolation, and characterization of various biofuel producing organisms.

**Thomas M. Potter:** With over twenty-one years of experience working in the field of waste site cleanup, Mr. Potter currently serves as the Statewide Clean Energy Development Coordinator for the Bureau of Waste Site Cleanup at the Massachusetts Department of Environmental Protection (MassDEP) in Boston. In conjunction with the Massachusetts Department of Energy Resources (DOER), Mr. Potter ensures project-specific support and coordination of parties seeking to develop renewable energy and energy efficiency projects in Massachusetts; provides for regulatory review and streamlining; develops policies and practices to review and assess clean energy opportunities, and provides broad public education and engagement for clean energy development opportunities in Massachusetts. Prior to this role, Mr. Potter served on the MassDEP's Commissioner's Office Environmental Innovations Team to help advance some of the Commissioner's priorities in the areas of expanding innovation and energy-environmental coordination across MassDEP programs and regions using innovative and efficient approaches to the agencies environmental protection programs. Prior to his help with this Team, Mr. Potter served for ten years as the Statewide Audit Coordinator for MassDEP's Bureau of Waste Site Cleanup Audit Program in Boston. As the Statewide Audit Coordinator, Mr. Potter was responsible for the implementation and operation of the legislatively mandated Audit Program, as well as, the legislatively mandated audit of Activity & Use Limitations by the 1998 Brownfield's Legislation. Prior to joining the MassDEP, Mr. Potter worked throughout New England as an environmental consultant in the private sector for over 5 years, concentrating primarily on sites regulated under the Massachusetts waste site cleanup program. As an Adjunct Professor, Mr. Potter completed a semester of instruction on the Massachusetts waste site cleanup regulations

at the University of Massachusetts in Boston. Currently a resident of the City of Boston, Mr. Potter holds a Bachelor of Science degree in Geography from Arizona State University in Tempe, Arizona.

**Mary J. Ratnaswamy** is originally from St. Paul, Minnesota. She completed her B.A. in Biology at Carleton College in Northfield, MN. She did an independent study in a mangrove estuary in Costa Rica for her senior thesis. Her experiences in Costa Rica led to strong interest in marine and coastal ecosystems, as well as marine mammal and sea turtle conservation. After college graduation, Mary worked at the Illinois Natural History Survey, and then went back to school to obtain a M.S. in Oceanography at the University of Rhode Island. Her Master's work focused on population dynamics of fin whales along the Atlantic coast. After obtaining her Master's degree, Mary returned to Costa Rica to work at the Green Turtle Research Station in Tortuguero. Mary subsequently worked for NOAA for five years, including conducting fisheries and bathymetric surveys in Alaska, Hawaii and California, and then oceanographic current research in the Caribbean. After some additional work on marine mammals for a non-governmental conservation organization, Mary went back to graduate school for her Ph.D. in Forest Resources (Wildlife Ecology and Management) at the University of Georgia. She had the opportunity to work with the National Park Service on an important management and conservation problem: raccoon depredation of sea turtle nests. This research topic combined her interests in mammalian predators and sea turtle conservation. Dr. Ratnaswamy took a position as Assistant Professor at University of Missouri-Columbia immediately after obtaining her Ph.D. She advised graduate students as well as taught undergraduate and graduate courses for several years until leaving her academic position to work for the U.S. Fish and Wildlife Service in Annapolis, MD. Dr. Ratnaswamy was Supervisor of the Endangered Species Program at the Chesapeake Bay Field Office for eight years, with a special focus on recovery of the endangered Delmarva fox squirrel. In 2008, Dr. Ratnaswamy transferred to USGS/Patuxent Wildlife Research Center as Research Manager over three programs including Migratory Birds, Coastal and Wetlands, and Ecosystems. Patuxent Wildlife Research Center is the largest biological science center in the USGS. She supervised 15-18 research grade scientists, as well as several staff, students and technicians. Dr. Ratnaswamy worked closely with the Center Director and other managers to build and direct the science mission and operations of the Center. Dr. Ratnaswamy was selected as the first Federal Director of the DOI Northeast Climate Science Center in Sept. 2012. She works as an equal partner with the University Director of the Northeast CSC to build this unique federal/university partnership. Her work contributes to the overall strategic mission of the USGS, which is to provide the science needed by natural and cultural resource managers facing the impacts of climate change and other major environmental issues.

**Dick Raymond** is the President of Terra Systems, Inc. which is a bioremediation products and services company that is celebrating its 21 year anniversary. During the past 29 years, he has designed and managed numerous successful in-situ and ex-situ soil and groundwater remediation projects in the United States, Brazil, Japan, and Europe. Dick co-founded Biosystems, Inc., the first environmental bioremediation company in the United States in 1984. The other co-founder is Dick Raymond, Sr. who authored the first in-situ bioremediation patent in the U.S. in 1971. Working together, Dick Raymond Jr. and Sr. proactively commercialized practical aerobic bioremediation technology solutions in the 1980's. Biosystems was later purchased by the DuPont Co. and renamed DuPont Environmental Remediation Services (DERS). During the past two decades, Dick Raymond Jr. has been an active participant in the development of advanced anaerobic bioremediation technology solutions. Dick is a co-founder of the Remediation Partners Consortium, a strategic alliance of complimentary remediation technology solution providers. He is also an affiliate member of the Alliance of Hazardous Materials Management Professionals (formerly the Academy of Certified Hazardous Materials Managers) and is a contributing member for the Sustainability in Remediation Forum (SURF). Dick received his BA/BS degree from American University in Washington, D.C. and an Executive MBA from Temple University in Philadelphia, PA.

**Mohsen Razzaghi** received his Master in applied mathematics from the University of Waterloo in Canada and his Ph.D. in mathematics from the University of Sussex in England. Since 1986, he has been at the Department of Mathematics and Statistics at Mississippi State University, where he is currently a Professor and Department Head. During academic year 2011-2012, he was a Fulbright Scholar at the Department of Mathematics and Computer Science at Technical University of Civil Engineering in Bucharest, Romania. His area of research centers on optimal control, remote sensing, orthogonal functions and wavelets in dynamical systems, and engineering. He has over 145 refereed journal publications in mathematics, mathematical physics and engineering.

**John Regan** is the Supervisor of the State Sites Section of the Hazardous Waste Remediation Bureau of the Waste Management Division. The State Sites Section oversees the investigation and remediation of more than 1100 sites in the Brownfield, Superfund Pre-remedial and Removal, RCRA Corrective Action and state Voluntary Clean-up programs. The section is responsible for hydrogeologic reviews associated with 7 lined and 200 unlined solid waste landfills. He has a total of 37 years of experience including 32 years with NH DES. He has been active with the Association of State and Territorial Waste Solid Waste Management Officials (ASTSWMO), serving on the Removal Action Focus Group. He is also a former Vice-President of the New Hampshire Geological Society. He has a BS in Hydrology from the University of New Hampshire.

**David W. Rich**, Ph.D, is the President and founder of Geotech Computer Systems, Inc. Dr. Rich has a B.S. in geology from the University of Notre Dame, and an M.S. and Ph.D. in geology from The University of Illinois. He combined his interest in computers and his knowledge of the earth sciences industry in 1986 to found Geotech Computer Systems. He has over 30 years of experience in the petroleum, mining, and environmental industries, having worked for Texaco (now Chevron), Shell, Sabine Corporation, and Grant Environmental/Sciencetech in addition to Geotech. With Geotech, Dr. Rich has worked with well-known corporations, federal, state and local governments, and small businesses and is a recognized expert in the field of earth science computing. In 1982, Dr. Rich co-founded C.O.G.S., the Computer Oriented Geological Society, an early leader in promoting earth science computing. He is the author of the book Relational Management and Display of Site Environmental Data, from CRC Press/Lewis Publishers. He is a member of a number of local and national earth science organizations, and trains and speaks extensively on environmental data management and other earth science computing topics.

**G. Todd Ririe** has a BA degree in geology from Cornell College, and a PhD degree in geology from the University of Iowa. Todd has over 25 years of experience in applied geology, geologic instruction, and environmental applications of geology. Since 1990, his primary responsibility has been on environmental projects primarily focused on petroleum hydrocarbon site assessment, vapor intrusion, and application of effective remedial approaches to reach closure. He worked many years for Unocal before joining BP in La Palma, CA after the Chevron acquisition of Unocal in 2005.

**Brian Roden** is an Environmental Scientist at AMEC Infrastructure and Environment's Wakefield, MA office. He holds a BS in Environmental Science and Policy from Clarkson University. His work is focused on human health and ecological risk assessment. He has conducted risk assessments under CERCLA, MCP as well as many other state programs. He has evaluated risk associated with a variety of different media including soil, sediment, surface water, groundwater, biota, and air. He is involved in planning site investigation activities to provide input on data necessary to complete risk assessment activities. He also incorporates the use of GIS into risk assessment to aid in defining exposure areas, calculating exposure point concentrations, and hot spot evaluations. He has developed risk based Preliminary Remediation Goals for various receptor scenarios to aid in site closure and cleanup.

**Margaret Round** is the Chief of Air Toxics in the Massachusetts Department of Public Health/Bureau of Environmental Health's (MDPH/BEH) Environmental Toxicology Program (ETP). The ETP evaluates acute and chronic health impacts associated with chemical

contaminants that may be present in a variety of environmental media including air, water, soil, fish, and some consumer products. Ms. Round has over 20 years of professional experience assessing potential public health impacts and related regulatory issues associated with exposure to air pollution. Since 2004, Ms. Round has been the project manager of a large-scale environmental health study of Logan Airport in Boston. While at MDPH/BEH she has also worked with the Massachusetts Department of Transportation to pilot the first health impact assessment of a transportation planning study (Grounding McGrath in Somerville, MA) mandated under the state's 2009 transportation reform law. Since 2010, Ms. Round has been responsible for overseeing a project assessing local public health capacity to address climate change impacts in Massachusetts and she is also actively involved in the bureau's implementation of an environmental health surveillance network. Prior to working at MDPH/BEH, Ms. Round was employed for 15 years at Northeast States Coordinated Air Use Management (NESCAUM) where she worked on implementation of state and national regulations of air toxic emissions. During this period, Ms. Round was responsible for a study that led to a bi-national framework involving the Northeast states and Eastern Canadian Provinces for reducing mercury emissions. Ms. Round has a Bachelor of Science degree in Toxicology from Northeastern University (1984).

**Richard Royer** graduated from Rutgers University with a BS in Environmental Science and earned an MS in Environmental Pollution Control and PhD in Environmental Engineering from The Pennsylvania State University. Rich's graduate work focused on anaerobic environmental microbiology. Prior to joining GE Rich worked at Penn State as a Research Associate focusing on the biogeochemistry of iron reduction. Rich is presently the head of the remediation team at the General Electric Global Research Center in Niskayuna, NY. His present work focuses on evaluating remediation technologies and providing scientific and engineering support to GE remedial projects. His work ranges from laboratory studies to support of full scale remedial system implementation. While he works on a range of contaminants including PCBs, chlorinated solvents, metals and inorganics he still has a special interest in the biogeochemistry of metals.

**Michael Ruby** is a Principal Scientist with Integral Consulting. He has over 20 years of experience in site investigation and remediation, environmental chemistry, exposure analysis, and regulatory affairs. Mr. Ruby is recognized as a leading scientist working on human exposure evaluation for organic and inorganic compounds. He has conducted extensive research on oral bioavailability and dermal absorption issues and is widely published in peer-reviewed journals on this topic. Mr. Ruby served on the National Research Council's Committee on Bioavailability of Contaminants in Soils and Sediments, which published a state-of-the-science review on bioavailability.

**P. Barry Ryan** is Professor of Exposure Science and Environmental Chemistry in the Department of Environmental Health, Rollins School of Public Health, Emory University. He is jointly appointed in the Department of Chemistry at Emory University. Prior to joining the faculty at Emory in 1995, he was on the faculty at Harvard School of Public Health. He received a BS in Chemistry from the University of Massachusetts, an MS in Physical Chemistry from the University of Chicago, and PhD in Computational Chemistry from Wesleyan University. He has been active in the exposure assessment field for over 25 years publishing in excess of 110 peer-reviewed manuscripts and book chapters and making over 200 presentations of his work to the scientific community. His work has included both cross-sectional and longitudinal studies of community-based exposure for multiple pollutants in multiple media. Dr. Ryan is Principal Investigator on a study assessing exposure to pesticides experienced by individuals in a community in Northern Thailand. In addition, he is Co-Principal Investigator and Co-Investigator on three separate Formative Research projects associated with the National Children's Study, including a large-scale longitudinal study of exposure biomarkers in pregnant African-American women. Finally, he is Principal Investigator of a study of the impact of a commuter airport on noise and air pollution in the surrounding community. He recently concluded work as Principal Investigator of a retrospective study of exposure to perfluorooctanoic acid in a large area surrounding a manufacturing facility using this compound. Other work completed recently by Dr. Ryan's group includes a U.S. EPA-funded STAR Grant designed to assess the effectiveness of biological

markers of exposure to organophosphate and pyrethroid pesticides and a study if the impact on the surrounding community of airport emissions of various airborne compounds. Dr. Ryan is a member of the Executive Committee of the Emory/Battelle/ Morehouse consortium for the National Children's Study. He was Principal Investigator on the U.S. EPA funded longitudinal study of exposures to pollutants known as the National Human Exposure Assessment (NHEXAS) - Maryland study, and was Co-Principal Investigator of a study on health-compromised individuals assessing the impact of particulate matter exposure on heart rate variability, and Co-Principal Investigator on a study of the impact of air pollution exposure on hiker lung-health in the Great Smoky Mountain National Park. Dr Ryan served a six-year term a member of the Board of Scientific Counselors for U.S. EPA's Office of Research and Development and a member of the US EPA Science Advisory Board Sub-Committee on Exposure and Human Health. Dr. Ryan also completed a four-year term on the Federal Advisory Committee for the National Children's Study being undertaken by the National Institutes of Health. He has served on numerous advisory panels for the U.S. EPA, most recently as a member of the EPA FIFRA SAP on Chlorpyrifos Health effects. Dr. Ryan has also served on several National Academy of Science panels.

**Tarek Saba**, Ph.D., is a Senior Managing Scientist at Exponent's Environmental Sciences practice. He has 14 years of experience providing consulting and expert support to oil and gas, industrial, and legal clients in matters involving chemical forensics, geochemistry, and hydrogeology. Dr. Saba's experience includes reconstructing the history of releases of petroleum hydrocarbons (LNAPL), PCE, TCE, and their degradation products, tar (DNAPL), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chlorinated solvents, dioxins and furans (D/F), and metals, among other chemical groups to determine contamination sources, extent of contamination, and liability. Dr. Saba has provided consulting and expert support in cases involving petroleum refineries, natural gas, hydraulic fracturing, manufactured gas plants (MGPs), pulp and paper mills, and landfills, in addition to other industrial facility setups. His scientific focus has been on the environmental contamination of groundwater, soils, and sediments, and the relationship between today's contamination and historical waste practices and standard of knowledge. Dr. Saba has been involved in complex environmental liability and litigation matters, natural resource damage assessments (NRDA), insurance remedial cost recovery claims (expected versus intended contamination), Superfund (CERCLA) liability, applicability of CERCLA's petroleum exclusion to Superfund former refinery and petroleum terminal Sites, and claims of groundwater contamination from hydraulic fracturing. In addition, Dr. Saba's expertise includes conducting detailed technical reviews of expert reports and assisting attorneys in preparation for depositions and trials. Dr. Saba earned a Ph.D. from the University of Colorado at Boulder and worked on groundwater remediation technology development as a subcontractor for the U.S. Environmental Protection Agency before starting his consulting practice.

**Mike Sequino**, Sr. Vice President, Directional Technologies, Inc., has a BS in Electrical Engineering from Northeastern University. He has more than 28 years experience in directional drilling and more than 20 years of experience with the design and installation of horizontal remediation wells and horizontal remediation systems in his role as Sr. Vice President/Owner of Directional Technologies, Inc. He has successfully designed and installed over a thousand horizontal remediation wells at Superfund sites, industrial facilities and commercial sites around the country by adapting vertical well technologies to horizontal remediation systems. He has authored numerous technical papers, including a recent publication demonstrating successful bioventing/closure of a large NAPL release at a bulk petroleum storage facility. He began his career in the Gulf of Mexico oil fields as a Wire Line Engineer with Schlumberger and from there **joined** Teleco Oil Field Services as a Field Test and Marketing Engineer before starting Directional Technologies with his wife, Katherine, in 1992.

**David Shea** has 23 years of experience as an environmental and site remediation engineer, the last 10 of which have been focused on vapor intrusion assessment and mitigation for residential, commercial, and industrial buildings. He is a Vice President with Sanborn, Head & Associates in Concord, New Hampshire, and is responsible for leading VI investigations and mitigation projects,

as well as environmental remediation projects, throughout the US and abroad. He holds a B.S. in Civil Engineering from Princeton University and a M.S. in Civil Engineering from M.I.T. He is a licensed professional engineer in 12 states.

**Alex Sherrin** started at the US Environmental Protection Agency (EPA) in 1987 as an On-Scene Coordinator in the Superfund Removal group conducting emergency responses and time critical removal actions. In 1995, Alex moved to Sydney, Australia where he worked with CH2M HILL as a consultant for four years. He spent two of these years working with the Olympic Coordinating Authority to clean up the site of the 2000 Sydney Olympic Games. In 1999, Alex returned to Boston and in 2001 obtained his Massachusetts Licensed Site Professional license. In 2004, Mr. Sherrin rejoined the US EPA as an On-Scene Coordinator in the Superfund Removal group

**Brian Skelly** is a Project Manager at GEI Consultants, Inc. with experience implementing air monitoring programs at 20 sites in 10 states over the past nine years, mainly for the utility industry. Mr. Skelly has a background in microscale meteorology, environmental site remediation, and 3D visualization. Prior to GEI, Brian conducted meteorological research in small scale turbulence at the University of Connecticut, and air dispersion modeling at the Connecticut Agricultural Experiment Station.

**Brant A. Smith**, Ph.D., PE, specializes in water chemistry and hazardous waste remediation with a particular emphasis on in situ chemical oxidation and reduction technologies. He is Director of XDD's treatability laboratory and responsible for the management, design and implementation of in situ remediation projects. The results of his research have been published in journals including *Environmental Science and Technology*, *Journal of Contaminant Hydrology*, *Environmental Toxicology and Chemistry*, and the *Journal of Environmental Engineering*. He has made over 45 presentations at international conferences. Dr. Smith is also a Co-Principal Investigator for a research grant ER-2132 awarded by through the Strategic Environmental Research and Development Program (SERDP) to evaluate long term impacts to groundwater following the application of ISCO and is a co-author of two chapters for "In Situ Chemical Oxidation for Groundwater Remediation."

**Zackary Smith** is a Senior Hydrogeologist at AECOM, located in Rocky Hill, Connecticut. In this role, Mr. Smith provides technical and management support for environmental site characterization and remediation projects. Mr. Smith's experience includes consulting for large manufacturing, petroleum, and mining clients, with a particular emphasis on solving complex groundwater contamination issues.

**Włodzimierz A. Sokół** (D.Sc.Eng.) is the Manager of International Projects and Director of the National Contact Point for Eco-efficient Technologies and Management Systems in Central Mining Institute (GIG) in Poland. He is as well the Verifier of European Eco-management and Audit Scheme (EMAS) and annual reports on emissions of greenhouse gases in framework of European Union Emission Trade System (EU ETS). Besides Dr Sokol teaches environmental management at the private high school in Katowice. He has over 35 years experience in conducting and implementing R&D ordered by power engineering, nuclear engineering, chemical and mining industry, a central and local governments and others. Between 2001-2008 Dr Sokół has worked as Vice-President with the Voivodeship Fund for Environmental Protection and Water Management in Katowice and priory as Vice-Director for Environmental Engineering with Central Mining Institute in Katowice, as General Director with Central Boiler Design Office in Tarnowskie Gory and as the Member of the Board of Supervisors with a few Small and Medium Enterprises. For few years he has managed as well its own R&D company. Dr Sokół completed management trainings in Belgium and Japan related waste and production management and between 1996-2001 has managed in Poland the National Cleaner Production Programme. Since 2012 he manages in Poland the project EFFECT-"Dialogue Platform on Energy and Resource Efficiency in the Baltic Sea Region" co-funded by Swedish Institute and in GIG the project LONGLIFE-INVEST-"The implementation of the planned Lithuanian Longlife pilot project as a dormitory for Klaipeda University" cofunded by Baltic Sea Region Programme 2007-2013. Between 2002-2005

Dr Sokół has managed in Poland international research programmes MASURIN and RESCUE related sustainable revitalization of brownfields being funded from EU Framework Programme. Dr Sokół works as an expert of the Ministry of Environment with the Working Group for evaluation of projects implemented in framework of National Operational Program Infrastructure and Environment being co-funded from EU Cohesion Fund. As the Member of Technical Committee for Environmental Management for Polish Committee for Standardization (since 1996) he shared into development of ISO IWA 9 - International Workshop Agreement - "Framework for managing sustainable development in business districts" (2010-2011). Dr Sokół is the author or co-author for over 150 publications related: programming of regional sustainable development, waste management, environmental management systems, Cleaner Production, safety of nuclear power plants and chemical installations, pro-ecological modernization of equipment for power plants and other industry, sustainable revitalization of brownfields in urban and mining areas and others.

**Ravi Srirangam**, Ph.D, has 6 years experience in the implementation of Insitu remediation systems. His experience includes: design and implementation of remedial technologies such as Insitu Chemical oxidation /Insitu Chemical Reduction technologies for treatment of chlorinated solvents and petroleum hydrocarbons in groundwater, enhanced anaerobic biodegradation of Polychlorinated Biphenyls (PCBs) in contaminated sediments using Zerovalent iron (ZVI) and hydrogen, bioavailability and risk assessment of PCBs in contaminated sediments using solid phase extraction with XAD-2 and Tenax sorbents. A 2007 graduate of the University of Illinois at Chicago, Ravi holds a Ph.D. in Environmental Engineering. He also earned a B.S. degree in Chemical Engineering and a M.Sc. degree in Chemistry from BITS (India).

Ravi's principal focus area with FMC includes:

- Providing technical and scientific support for remedial efforts focused on soil, sediment, wastewater and groundwater environments including technical support on product implementation, knowledge transfer/training to clients
- Participating in research and development efforts for building the portfolio of FMC's technologies for Insitu remediation.

**Nathan A. Stevens** attended Boston College and the University of Maine, obtaining degrees in Geology and Hydrogeology. He worked as an environmental consultant from 1999 through 2009, as a client from

2009 through 2013, and is currently the manager of the Gulf Oil terminal in Chelsea, Massachusetts. He

lives in Lancaster, Massachusetts with his wife and two sons.

**Guy Swenson** has a B.A. and M.S. in geology and more than 32 years of professional experience. As a Senior Technical Director with O'Brien & Gere, Mr. Swenson's professional expertise also includes developing innovative and cost-effective solutions to technical problems associated with environmental and groundwater supply projects. He has been responsible for CERCLA, RCRA, and state regulated programs for major industrial firms, municipal governments, and for legal firms acting on behalf of clients. Mr. Swenson has been involved with groundwater supply, investigation, and remedial design projects in diverse unconsolidated environments such as glacial, fluvial, lacustrine, and marine deposits, as well as fractured bedrock and karst terrain located across the United States.

**Robin Swift** is a Project Manager and Department Manager of the PM group at TerraTherm, Inc. Ms. Swift has a strong background in the environmental field with over 18 years of experience as a field lead, engineer, and manager. She received a Civil and Environmental Engineering degree from the University of Massachusetts. For the past decade, she has been involved with the design, construction, implementation and management of several remedial systems, including thermal, pump and treatment, vapor intrusion, and bioremediation at several Superfund sites. Additionally, Ms. Swift regularly oversaw data management and quality control/quality assurance programs on a variety of projects with direct supervision from the EPA. She currently manages several ISTR projects within the United States. Ms. Swift has contributed to several publications

on thermal remediation, pump and treatment systems, monitored natural attenuation, and vapor intrusion.

**Christopher M. Teaf** is a Board-certified toxicologist, risk assessor, and public health specialist. He has been Associate Director of the Florida State University Center for Biomedical & Toxicological Research since 1979. He has over 3 decades of environmental and public health experience specializing in soil, water and air quality, risk assessment, and environmental health issues including metals, petroleum, pesticides, solvents, particulates, and bacteria/molds. His experience includes power generation facilities, manufactured gas plants, industrial facilities, agricultural sites, waste management facilities, educational institutions, and products in general commerce. Chris has directed research or taught many environmental toxicology and risk assessment courses for the private sector as well as for USEPA, the World Health Organization, NATO, U.S. Air Force, ATSDR and numerous state/local agencies. He presently serves as Senior Human Health Editor for *Human & Ecological Risk Assessment*, an international journal, and has served on Technical Advisory Committees for many environmental symposia in the US, Europe and Central Asia, including this Amherst Conference for over 15 years. Chris has provided toxicology and health testimony for federal and state agencies and state or federal courts for over 25 years.

**Karen Thorbjornsen** holds Bachelor of Science and Master of Science degrees in Geology and is a registered Professional Geologist. She has 17 years of environmental consulting experience with CB&I Federal Services (formerly Shaw Environmental & Infrastructure) in Knoxville, Tennessee. She performs background studies for metals and PAHs in environmental media and statistical analyses of environmental data at numerous sites across the United States. She specializes in geochemical evaluations of metals — a technique to distinguish natural concentrations from site-related contamination in soil, groundwater, sediment, and surface water. Ms. Thorbjornsen performs geochemical evaluations to refine lists of chemicals of concern, delineate the extent of contamination, optimize long-term monitoring programs, confirm the success of soil-removal actions, and characterize background distributions. She has authored several papers on geochemical evaluations of metals and teaches short courses on the technique.

**Priscilla Tomlinson** is a toxicologist with Integral Consulting Inc. She has an M.S. in toxicology from the University of Washington. Ms. Tomlinson has over 25 years of experience in risk assessment, risk management, and site investigation for a diverse array of clients throughout the United States, including private industry; city, county, state, and federal agencies; and Native American tribes. She manages complex risk assessment projects, including probabilistic risk assessments, and has particular expertise with petroleum, arsenic, lead, and dioxins/furans. Ms. Tomlinson teaches classes on the Washington State Model Toxics Control Act (MTCA) and has applied her regulatory expertise at numerous sites around the state.

**Harun Turkmenler** was born in Gaziantep/Turkey in 1971. He graduated from Ankara University in 1993. He completed Master's Degree from the University of Gebze Institute of Technology in 1998 and his Ph.D. from the Sakarya University in 2005. He worked as control engineer in İSKİ (Istanbul Water and Sewage Administration) in Istanbul between June 2006 and December 2012. At the end of 2012, he appointed as Assistant Professor at Adiyaman University, Engineering Faculty, Environmental Engineering Department. His research interests are Environmental Biotechnology and Bioenergy, Eutrophication, Physicochemical Treatment (Adsorption-Biosorption), Water pollution and Control, Wastewater Treatment Systems.

**Matthew P. Tymchak** is an Associate Hydrologist with Gradient, located in Cambridge, Massachusetts. He specializes in evaluating the source, transport, and fate of a broad range of chemicals in various environmental media including soils, surface water, groundwater, and deep geologic formations. He has consulted on a variety of sites, including CERCLA, Superfund, NY State Class II Hazardous Waste, and Brownfields sites, as well as industrial facilities, former manufactured gas plants and commercial service stations. Mr. Tymchak has evaluated deep

geologic reservoirs for the storage of carbon dioxide and migration of hydraulic fracturing additives and flowback chemicals from tight oil and gas formations.

**Rock J. Vitale** has more than 30 years of analytical quality assurance experience. As the founder and a Principal of Environmental Standards, Mr. Vitale oversees a staff of approximately 40 quality assurance chemists and is responsible for the direction of the technical and managerial aspects of the company's operations. Mr. Vitale received a B.S. in Environmental Science and Biology from Marist College. He completed additional post-graduate Chemistry courses at Villanova University and Rider College and Chemistry Graduate Course Work at Villanova University.

**Katherine von Stackelberg** specializes in developing risk-based tools and methods to support sustainable approaches to environmental decision-making. She is a Principal at NEK Associates LTD and a Research Scientist at the Harvard Center for Risk Analysis, part of the Harvard School of Public Health, where she is Leader of the Superfund Research Translation Core. In that capacity, she is responsible for developing innovative approaches for characterizing public health risks from environmental exposures incorporating genomic interactions and biological pathways. She also develops outreach materials across diverse stakeholders to communicate the public health and policy implications of the research outputs. Much of her work has focused on incorporating quantitative uncertainty analysis (e.g., analytical, probabilistic, and fuzzy methods) into the environmental management process, and she has been at the forefront of the effort to explore methods for effectively communicating and interpreting uncertainty in scientific analyses to support environmental decision-making. Dr. von Stackelberg has managed and served as technical lead for several large US EPA and US Army Corps of Engineers projects focused on contaminated sediments. She is an experienced modeler, and served as technical lead for the development of several aquatic food web models used to support risk-based decision making for the Corps and US EPA, including *FishRand*, *FishRand-Migration*, and *TrophicTrace*. Dr. von Stackelberg is an advocate of decision analytic approaches for supporting decision-making by integrating environmental models, stakeholder preferences, and GIS-based data and modeling. She is involved in developing approaches to quantify changes in ecosystem services, and identifying relationships between ecosystem services and expected benefits with the goal of integrating economics and risk assessment to better quantify the benefits of proposed risk reductions as a result of management or regulatory actions for use in cost-benefit, cost-effectiveness, and value of information analyses.

Dr. von Stackelberg serves as peer reviewer for numerous journals, and is on the editorial boards of *Human and Ecological Risk Assessment* and *Risk Analysis*. She serves as Chair of the US Environmental Protection Agency's Board of Scientific Counselors, and the Global Science Committee for the Society for Environmental Toxicology and Chemistry (SETAC). She was recently elected Treasurer for the Society for Risk Analysis, and serves on both the Risk Assessment and Contaminated Sediments Committees of the Interstate Technology and Regulatory Council (ITRC). She is a member of the Scientific Advisors on Risk Assessment for the European Commission in Brussels. Dr. von Stackelberg received an A.B. *cum laude* from Harvard College, and a Sc.M. and Sc.D. from the Harvard School of Public Health in Environmental Science and Risk Management.

**Michael J. Wade**, as Principal Scientist of Wade Research, Inc.<sup>™</sup>, provides geochemical consulting services to a variety of government agencies, industrial clients, and law firms. Dr. Wade is an organic geochemist with experience in a variety of research programs with special emphasis on study of organic contamination in the environment. He has refined quantitative field and laboratory investigation approaches designed to establish time frames for the release of gasoline, kerosene, diesel fuel and heavier fuel oils in subsurface petroleum contamination cases. Annually Dr. Wade conducts 20 to 30 such programs for clients throughout North America. He regularly provides expert forensic services both through deposition process as well as testimony in various U.S. Federal and State Courts in the areas of environmental contamination, including assessment of sources of contamination, identification of petroleum product types,

quantification of weathering effects on petroleum products, and age-dating of petroleum product releases.

**Yi Wang**, Ph.D., is the Director of ZymaX Forensics Isotope, an environmental isotope laboratory serving clients in all 50 states as well as numerous international locations for decades. He has a Ph.D. in Environmental Science from Chinese Academy of Sciences, Beijing, China. He received his training on the state-of-art technology Compound Specific Isotope Analysis (CSIA) at Brown University and Princeton University. Dr. Wang is a Senior Environmental Geochemist applying isotopes such as carbon, hydrogen, chlorine, nitrogen, oxygen, sulfur, boron, chromium, and strontium, etc. He has over twenty years of experience in environmental studies on issues related to air, soil, and water contamination. Authored over 50 peer-reviewed articles and books, shared this information via invited lectures throughout the world, and peer-reviewed manuscripts to be published in the Journals.

**Christopher Weber** recently graduated from Clemson University (August 2013) with a Master's degree in environmental engineering. His previous education includes a BS in civil engineering from Purdue University. At Clemson, his coursework was predominantly process focused on water and wastewater treatment unit operations. Under the direction of Kevin Finneran, his graduate research focused on evaluating the use electrically conductive carbon fiber electrodes for improving carbon oxidation in septic systems. He is currently employed by Heritage Research Group, which is located in Indianapolis, Indiana.

**Kevin Wheeler** is a Sr. Hydrogeologist and Remediation Specialist working for Sovereign Consulting out of Robbinsville, NJ. He has over 20 years of experience in remediation pilot testing, remedy selection, remedial design, system construction, and optimization. His expertise includes multi-phase extraction systems, enhanced bioremediation, and in-situ chemical oxidation; including the design and operation of more than 15 ozone sparging systems since 1997.

**Jim Whetzel** has a B.S. degree in Chemistry and is the laboratory Quality Manager and a project manager for Amplified Geochemical Imaging, LLC (AGI) which recently purchased the Survey Products Group of W. L. Gore and Associates. Jim had been with Gore for over 18 years prior to the sale and has more than 25 years experience in the environmental field, working in laboratories in Maryland, North Carolina, and Minnesota. His primary areas of responsibility include project management and technical support for environmental applications, and laboratory quality assurance. Jim has presented at more than a dozen conferences on the topic of passive sampling in air, water, and soil gas. He was also a contributing author on the 2007 ITRC publication, Vapor Intrusion Pathway: A Practical Guideline, a current member of the ITRC petroleum vapor intrusion team, and a member of the ASTM work group which produced the standard practice for passive soil gas sampling.

**Ross Wilson** is a board-certified expert in toxicology with 24 years of experience in the human health risk assessment of chemicals found in air, soil, water and food. He has completed more than 200 risk assessment projects examining potential human health risks from exposures to both carcinogens and non-carcinogens. He has authored various guidance documents completed for Health Canada addressing issues such as soil and dust ingestion rates, exposure amortization and the toxicology of various metals and organic chemicals.

**Peter W. Woodman**, B.Pharm (hons.), Ph.D. President, Co-founder & CEO has forty-one years of experience in conducting and managing toxicological, pharmacological, medicinal chemistry and ecological programs to assess and control the effects of chemicals and radionuclides on human health and the environment and, more recently, probabilistic risk assessments of climatic changes on coastal habitats and their preservation and restoration. For public and private sector clients, has conducted numerous deterministic and probabilistic risk assessments and air monitoring programs, including indoor air forensic investigations, to evaluate the impact of hazardous chemicals and radionuclides on human health, public welfare, and the environment

under CERCLA/SARA, RCRA, RBCA, Brownfields, the Massachusetts Contingency Plan (MCP), Connecticut Department of Environmental Protection (CTDEEP) Remedial Standards, New Hampshire Department of Environmental Services (DES), New York, Maryland, Rhode Island, New Jersey and other state programs, using innovative approaches to develop site-specific risk-based cleanup strategies and goals that are protective of human health and the environment. In addition, for private sector clients, provides "Expert Witness" support in the field of toxicological assessment of the impact of hazardous chemicals on human health in residential, commercial and industrial settings and in indoor air forensic investigations.

**Matthew Young** works as a Senior Project Manager in the Environmental Affairs Department of Cumberland Farms Inc./Gulf Oil LLP. He has completed a Bachelor of Science degree in Chemistry-Geology from Bridgewater State University and a Master of Science degree in Project Management with a specialization in Geographic Information Systems from Northeastern University.

**David Yoxheimer**, P.G. is a hydrogeologist and extension associate with Penn State University's *Marcellus Center for Outreach and Research* and serves as a liaison between the University, natural gas industry, environmental organizations, local government and the general public to advise stakeholders on key environmental issues. He earned his B.S. in Earth Science from Penn State, where he is currently completing his Ph.D. in Geosciences. Previous to joining MCOR he spent 18 years as a consulting hydrogeologist with expertise in water supply development, karst hydrogeology, geophysical surveying, environmental permitting, shale energy geology, and integrated water resource management.

**Hui Yu**, PhD, P.Eng, received doctoral degree in environmental systems engineering from the University of Regina. She is currently a postdoc in the Civil and Environmental Engineering Department at Temple University. Her research interests focus on fate and transport of persistent organic pollutants in both subsurface and surface water systems, advanced remediation techniques development for petroleum contaminated site, treatment of municipal/industrial waste as well as molecular characterization the microbial community composition and ecology of environmental samples. Dr. Yu has more than 20 peer-refereed journal papers published or accepted for publication.

**Bilgen Yuncu** obtained her Ph.D. in Civil, Construction and Environmental Engineering from North Carolina State University and worked as a Post-Doctoral Research Scholar in the same department. Her Ph.D. work has been mainly focused on taste and odor removal from drinking water by adsorption and ozone oxidation. As a post-doctoral scholar, she conducted research on biodegradation - sorption barriers for munitions constituents. Since February 2012, she has been working for Solutions-IES. Dr. Yuncu specializes in the application of physico-chemical treatment processes and bioremediation of hazardous compounds in soil and groundwater.

**Stephen Zemba**, Ph.D., P.E., is a Mechanical Engineer with CDM Smith in Cambridge, MA. Dr. Zemba received his B.S. from Carnegie Mellon University, and his M.S. and Ph.D. from the Massachusetts Institute of Technology, all in mechanical engineering. He has performed original research, published, and consulted in the areas of air pollution phenomenology, fate and transport modeling, and risk assessment. He has investigated such topics as acid rain, dense gas plume dispersion, indoor air dispersion modeling, ocean disposal of carbon dioxide, evaluation of methods to estimate exposure point concentrations, and vapor transport of contaminants in soils. Dr. Zemba specializes in performing qualitative and quantitative assessments of human health and ecological risks associated with environmental contamination, with emphasis on modeling of pollutant fate and transport. His recent work includes the design and implementation of multi-pathway exposure assessments for air pollution sources and the assessment of contaminated waste disposal sites. Dr. Zemba has teaches courses on air quality management, climate change, and practical applications of air dispersion modeling, with focus on balanced decision-making and sustainable development.