

Appendix A

Curriculum Vitae of
Barbara D. Beck, Ph.D., DABT, FATS



Barbara D. Beck, Ph.D., DABT, FATS

Principal

bbeck@gradientcorp.com

Areas of Expertise

Risk assessment, exposure assessment, toxicology, metals, inhaled pollutants, soil contaminants, historical knowledge of toxicology.

Education

Ph.D., Molecular Biology and Microbiology, Tufts University, 1976.

A.B., Biology, Bryn Mawr College, 1968.

Diplomate, American Board of Toxicology (DABT), 1988; recertified 1994, 1999, 2004, 2009.

Fellow, Academy of Toxicological Sciences (FATS), 2002; recertified 2007, 2012.

EU-registered toxicologist (ERT) *via* membership in the UK Register of Toxicologists, 2004; recertified 2007, 2009.

President, Academy of Toxicological Sciences, July 1, 2009 to June 30, 2010.

Professional Experience

1987 – Present GRADIENT, Cambridge, MA

Principal. Environmental consulting practice includes evaluation of chemical toxicity, health risk assessment for cancer and non-cancer endpoints, review of animal toxicology studies, and multimedia assessment of exposure to environmental chemicals. Special emphasis on metals and inhaled chemicals.

1985 – Present HARVARD SCHOOL OF PUBLIC HEALTH, Boston, MA

Visiting Scientist in the Molecular and Integrative Physiological Sciences Program in the Department of Environmental Health.

1985 – 1987 REGION I ENVIRONMENTAL PROTECTION AGENCY, Boston, MA

Regional Expert in Toxicology and Supervisory Scientist, Air Toxics Staff. Performed risk assessments for toxic air pollutants. General staff responsibilities included air impacts at waste sites, state air toxic programs, and US EPA radiation programs.

1979 – 1985 HARVARD SCHOOL OF PUBLIC HEALTH, Cambridge, MA

Research Associate in Environmental Science and Physiology and Fellow in Interdisciplinary Programs in Health. Developed short-term animal bioassay for pulmonary toxicants. Editor and author of monograph on variations in susceptibility to inhaled pollutants for both cancer and non-cancer endpoints.

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1978 – 1979 TUFTS UNIVERSITY SCHOOL OF MEDICINE, Boston, MA
Instructor in Protein Chemistry. Isolated phagocytosis inhibiting factor from immunoglobulin of individuals with inherited susceptibility to bacterial infections.

1977 – 1978 HARVARD UNIVERSITY, Cambridge, MA
Postdoctoral Fellow in Biology. Researched novel properties of bacterial protein elongation factor, EF-Tu, relevant to possible role as a structural protein.

1975 – 1976 UNIVERSITY OF MASSACHUSETTS MEDICAL SCHOOL, Worcester, MA
Postdoctoral Fellow in Microbiology. Isolated and analyzed messenger RNA from slime molds. Initiated project on elongation factor, EF-Tu.

1968 – 1969 TUFTS UNIVERSITY SCHOOL OF MEDICINE, Boston, MA
Research Assistant in Molecular Biology and Microbiology. Performed genetic and biochemical studies on bacterial lipopolysaccharide.

Professional Activities

- Member of Massachusetts Department of Public Health Eastern Equine Encephalitis (EEE) Expert Panel, January-May 2012.
- Past President, Academy of Toxicological Sciences, June 2010-June 2011.
- Member, National Research Council's Committee on the Future Options for Management in the Nation's Subsurface Remediation Effort, November 2009-Present.
- President, Academy of Toxicological Sciences, July 2009-June 2010.
- Recipient, Lifetime Achievement Award, Awarded by the University of Massachusetts Amherst, School of Public Health and Health Sciences, 2009.
- Member, Massachusetts Department of Public Health Advisory Committee, 2007.
- Member, Executive Committee of International Dose-Response Society, 2006-Present.
- Councilor, Metals Specialty Section, Society of Toxicology, 2006-2007.
- Member, Board of Directors, Academy of Toxicological Sciences, 2005-2011.
- Member, Scientific Advisory Committee to the Manganese Health Research Program, 2004-2009.
- Member, Peer Review Committee, US EPA National Health and Environmental Effects Research Laboratory, Experimental Toxicology Division, 2003.
- Member, CIIT Science Advisory Committee, 2002-2004.
- Member, Program Committee, Society of Toxicology, 2001-2005.
- Member, American Chemistry Council Risk Assessment Methods Technical Implementation Panel, 1998-2001.
- Member, International Life Sciences Institute Steering Committee on Cumulative Risk Assessment, 1998.
- Member, Membership Committee, Society of Toxicology, 1997-2000.
- Member, American Water Works Association Research Foundation Peer Review Panel on Arsenic, 1997-1998.
- Member, Advisory Committee to Public Health Program, Florida A & M University, 1996-2002.
- Member, Risk Assessment Task Force, Society of Toxicology, 1996-2000; Chair, 1999-2000.
- Member, Continuing Education Committee, Society of Toxicology, 1996-1997.
- Member, Watertown, MA, Board of Health, 1995-Present; Former Chair.
- Chair of Session, Ecological and Human Health Protocols at GRI Meeting on Environmentally Acceptable Endpoints in Soil, Arlington, VA, 1995.
- Session Chair, International Conference on Arsenic, San Diego, CA, 1995.
- Rapporteur, US EPA Meeting on Risk Assessment for Chemical Mixtures, Research Triangle Park, NC, 1994.
- Member, Program Committee, Society of Toxicology, 1993-1996.
- Member, Arsenic Task Force, Society for Environmental Geochemistry and Health, 1993-1995.

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- President, Risk Assessment Specialty Section, Society of Toxicology, 1994-1995.
- Vice President, Risk Assessment Specialty Section, Society of Toxicology, 1993-1994.
- Member, Work Group on Arsenic, Society for Environmental Geochemistry and Health, 1993.
- President, Northeast Chapter of the Society of Toxicology, 1992-1993.
- Member, Review Committee, US EPA Workshop on the Methodology for Deriving National Ambient Water Quality Criteria for the Protection of Human Health, 1992.
- Consultant to SAB Committee on Hazardous Air Pollutants, 1991.
- Member, Advisory Committee to Harvard Center for Risk Analysis, 1990-1993.
- Member, Committee on Public Communications, Society of Toxicology, 1990-1992.
- Councilor, Inhalation Specialty Section, Society of Toxicology, 1990-1992.
- Member, Advisory Committee to US EPA on Metal Bioavailability, 1990.
- Member, Technical Committee of Council for Health and Environmental Safety of Soils (CHESS), 1988-1990.
- President, Northeast Chapter of the Society for Risk Analysis, 1987-1988.
- Member, Peer Review Committee, US EPA Inhalation RfD Document, 1987.
- Member, Maine Science Advisory Panel, 1986-1990.
- Member, US EPA Risk Assessment Forum, 1986-1987.
- Member, Rhode Island Air Toxics Advisory Committee, 1986-1987.
- Member, Massachusetts Visibility/Public Health Index Peer Review Team, 1986.
- Member, Massachusetts Air Toxics Guidelines Review Committee, 1985-1988.
- Member, Air Toxics Committee of Northeast States for Coordinated Air Use Management, 1985-1987.

Professional Affiliations

Academy of Toxicological Sciences; American Association for the Advancement of Science; American Thoracic Society; International Society of Exposure Analysis; Society of Environmental Geochemistry and Health; Society for Risk Analysis; New England Chapter of the Society for Risk Analysis; Society of Toxicology; Northeast Chapter of the Society of Toxicology

Projects

Law Firm: Evaluation of health significance to nearby residents of releases to air from an oil refinery during upset conditions.

Law Firm: Evaluation of potential human health risks for metals, including arsenic, barium, lead and zinc, at a site used for manufacture of drilling muds.

US Dept. of Justice: Development of sampling plan and risk assessment for spray drift exposure to pesticides.

Law Firm: Evaluation of potential risks from manganese in air and soil near manufacturing facility as part of regulatory analysis.

Engineering Company: Evaluation of exposure to hexavalent chromium in outdoor air and soil and need for medical monitoring.

Health Canada: Peer review of exposure components of pilot program *Screening Assessment Document* for ethylbenzene. Peer review of toxicological analysis of aniline.

Perchlorate Study Group: Comments on scientific validity of US EPA RfD for perchlorate.

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Gas Utility Companies: Analysis of exposures to and toxicological effects of elemental mercury in air.

Multiple Industrial Clients: Analysis of historical state of knowledge of asbestos exposure, toxicology, and risks.

Law Firm: Evaluation of effects of lead on different health endpoints, including neurocognitive changes and behavioral effects in children.

US EPA Region I: Compilation and review of air toxics monitoring studies in Region I with respect to adequacy in reflecting human exposure and in identifying relevant sources from a risk perspective.

Law Firm: Evaluation of risks associated with CCA-treated wood. Development of exposure studies for CCA-treated wood.

Utility company: Evaluation of exposures and risks of coal fly ash.

Massachusetts Attorney General: Presentation on the use of risk assessment for the siting of an energy facility.

Law Firm: Evaluation of potential short-term and long-term human health risks from metals including zinc and organics (including mineral oils) from possible medical exposures.

Environmental Engineering Company: Human health and ecological risk assessment for PAHs, dioxins, and other compounds at a former chemical R&D facility, including development and oversight of sampling.

EPRI: Synthesis report of arsenic research studies. Toxicological analysis of methylmercury and lead; development of research plan.

Consumer Product Manufacturer: Toxicological evaluation of different preservatives and bittering agents for possible use in a consumer product.

US EPA, Office of Research and Development: Development of toxicity data base for inhalation exposure to the Hazardous Air Pollutants listed under the 1990 Clean Air Act Amendments.

Pesticide Registrant: Evaluation of carcinogenic mode-of-action and EU classification of a biocide.

Wood Preservative Science Council: Evaluation of US EPA Stochastic Human Exposure Dose Simulation model.

Law Firm Representing Municipality and Port Authority: Prepared risk assessment for proposed development at former MGP site, evaluating future exposures to construction workers and residents. Developed risk-based remedial targets.

Electronics Manufacturer: Risk communication to plant employees regarding exposures to TCE and DCE in groundwater.

Consumer Product Manufacturer: Evaluation of toxicity of hydrogen sulfide and risk communication on hydrogen sulfide at community meetings.

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American Red Cross: Review of toxicity of new blood bag plasticizer and assessment of potential risks to blood product recipients.

Consulting Company: Evaluation of health significance of metal exposures, especially iron, at historic mine site in New England.

New Mexico Environment Dept.: Risk assessment for metals at copper mining and smelting site.

Chemical Manufacturers Association: Review of US EPA land disposal regulations Phase IV. Review of ozone risk assessment in US EPA ozone staff paper.

Health Effects Institute: Assessment of literature on carcinogenicity of inhaled diesel exhaust particulates, especially using urine mutagenicity. Review of literature on toxicity of carbon monoxide and effects on individuals with angina.

Multinational Manufacturer: Risk assessment and risk communication for perchloroethylene in drinking water at operating facility in Asia.

American Petroleum Institute: Role of risk assessment in Superfund remedy selection process and associated costs.

Pesticide Manufacturer: Evaluation of toxicity and environmental migration of organo-arsenicals. Probabilistic margin-of-exposure analysis for inorganic arsenic.

Industrial Client: Participation in advisory panel regarding health effects of inhaled and ingested hexavalent chromium.

Law Firm: Evaluation of possible air exposures and health studies at former phosphorous manufacturer in Florida.

American Lung Association of Maine: Technical advice on health effects of criteria and non-criteria air pollutants. Review of regulatory packages.

International Chemical Manufacturer: Evaluation of cancer classification systems and setting of occupational exposure limits in European countries and organizations.

Boston Medical Center: Coordination of study of potential effects of perchlorate in humans.

Zinc Corporation of America: Risk assessment using both environmental and epidemiological data for lead and cadmium in soil at a Superfund site.

Law Firm Representing a Manufacturing Company: Risk assessment for potential exposure to TCE in drinking water, including use of adjustment for mutagenicity.

Major Canadian Mining Company: Evaluation of arsenic exposure at mining/milling site using biological monitoring, risk assessment for arsenic, and communication with the public and regulatory agencies.

Law Firm Representing Utility Company: Prepared report regarding historical knowledge of toxicity of simple and complex cyanides, and of oxide box waste materials at former MGP sites. Prepared risk assessment for site.

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New Jersey Dept. of Environmental Protection: Site assessment and risk assessment for specialty chemical manufacturing site in New Jersey involving volatile organic chemicals and DDT.

Law Firm: Assessment of toxicity and risks of MTBE, especially with respect to tap water exposure.

US EPA/Engineering Company: Development of work plan to conduct morbidity or mortality study, using readily available databases, for high ozone levels experienced in summer of 1988.

Law Firm Representing Smelter Owner: Evaluated health protectiveness of state cleanup levels for arsenic, lead, and cadmium in soil in class action case.

Chemical Manufacturer: Development of risk screening process for evaluating potential hazards at international sites as part of property transfer.

Major Consumer Product Manufacturer: Development and application of adult blood lead model to predict blood lead levels from discontinuous exposures to lead released from a consumer product.

Engineering Company: Risk assessment for lead, asbestos, PCBs, and other chemicals in soil and water at former brake lining manufacturing facility.

Law Firm: Risk support at multiple MGP sites, including evaluation of potential risks from VOCs in groundwater and evaluation of potential risks to workers from PAHs in soil.

Battery Manufacturing Company: Development and oversight on sample collection and analysis program for lead exposure, evaluation of existing blood lead and tooth lead data, and application of blood lead model.

Oil & Gas Company: Risk assessment support for several major mining-related Superfund sites in the western US. Evaluation of toxicology, epidemiology, and bioavailability of metals, including lead, arsenic, and cadmium. Development of cleanup levels.

International Lead Zinc Research and Organization: Development of probabilistic blood lead model.

Marine Shale Processors: Risk assessment of lead, other inorganics and organic compounds in aggregate produced by hazardous waste recycling. Evaluation of risks of air emissions during incineration process.

Remedial Trust Representing Consortium of PRPs: Evaluation of university and agency research plans involving groundwater modeling and remedial approaches at former manufacturing site. Evaluation of biomonitoring approaches for metals. Evaluation of arsenic risk assessment for site.

Coalition for Clean Air Act Implementation: Evaluation of technical issues, including use of composite scores, in 112(g), trading of hazardous air pollutants. Quantification of uncertainty in the composite source.

Canadian Mining Company: Risk assessment for multiple metals associated with tailings release at mine in Southeast Asia.

Mining/Smelting Company: Evaluation of multipathway risks associated with slag use. Comments on US EPA Hazardous Waste Identification Rule.

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Consortium of Massachusetts Utility Companies: Review of toxicological knowledge of chemicals at MGP sites over time for Massachusetts generic rate setting case.

Law Firm: Evaluation of non-cancer risks from alkylphenols in groundwater at a wood tar site, based on structure activity relationships. Evaluation of risks from polycyclic aromatic hydrocarbons.

Pharmaceutical Company: Comment on *Federal Register* notice on delisting of incinerator ash from RCRA regulations. Reviewed applicability of model to dioxin-contaminated ash.

Northeast States for Coordinated Air Use Management: Technical assistance in organizing conference on use of bioassays in evaluating ambient air pollutants and presentation of report on use of short-term pulmonary bioassays in evaluation of toxicity and potential health effects of urban particulates.

Law Firm: Risk assessment for arsenic-contaminated soil. Assessed human health risks *via* inhalation and ingestion and ecological risks to deer populations.

Gas Research Institute: Assistance in preparation of exposure manual for MGP sites.

Law Firm: Regulatory analysis for perchlorate in drinking water well in Massachusetts.

State Agency: Impact analysis for a potential toxicological exposure of a biologic product related to manufacturing.

Publications – Articles

Beck, BD; Seeley, M; Calabrese, EJ. 2013. "The use of toxicology in the regulatory process." In *Principles and Methods of Toxicology, Sixth Edition*. (Ed.: Hayes, AW), Informa Healthcare, Cambridge, UK. (In press).

Seeley, M; Wells, CS; Wannamaker, EJ; Mattuck, RL; Ren, S; Beck, BD. 2012. "Determining soil remedial action criteria for acute effects: The challenge of copper." *Regul. Toxicol. Pharmacol.* (In press).

Beck, BD; Long, CM; Seeley, MR; Nascarella, MA. 2012. "A special issue on nanomaterial regulations and health effects." *Dose Response* 10:306-307.

Beyer, LA; Greenberg, G; Beck, BD. 2012. "Exposure to metals in laundered shop towels." *Safely Made* 3(3):1,8-21.

Hughes, MF; Beck, BD; Chen, Y; Lewis, AS; Thomas, DJ. 2011. "Arsenic exposure and toxicology: A historical perspective." *Toxicol. Sci.* 123(2):305-332.

Beyer, LA; Beck, BD; Lewandowski, TA. 2011. "Historical perspective on the use of animal bioassays to predict carcinogenicity: Evolution in design and recognition of utility." *Crit. Rev. Toxicol.* 41(4):321-338.

Greenberg, GI; Beck, BD. 2011. "Use of years of potential life lost (YPLL) for risk assessment at hazardous waste sites." In *Encyclopedia of Environmental Health*. (Ed.: Nriagu, JO), Elsevier Press, Burlington, MA, p602–607.

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Petito Boyce, C; Lewis, AS; Sax, SN; Beck, BD; Eldan, M; Cohen, SM. 2010. Letter regarding "Probabilistic modeling of dietary arsenic exposure (Xue *et al.*, 2010)." *Environ. Health Perspect.* 118(8):A331.

Lewis, AS; Beck, BD. 2010. "Nonlinear low-dose extrapolations." In *Cancer Risk Assessment: Chemical Carcinogenesis, Hazard Evaluation, and Risk Quantification*, (Eds.: Hsu, CH; Stedeford, T), John Wiley & Sons, Inc., Hoboken, NJ, p659-680.

Meek, ME (Bette); Levy, L; Beck, BD; Danzeisen, R; Donohue, JM; Arnold, IMF; Krewski, D. 2010. "Risk assessment practice for essential metals." *J. Toxicol. Environ. Health A* 73(2):253-260.

Prueitt, RL; Beck, BD. 2010. Commentary on "Toxicity Testing in the 21st Century: A Vision and Strategy." *Hum. Exp. Toxicol.* 29(1):7-9.

Prueitt, RL; Beck, BD. 2009. Commentary on "Toxicity Testing in the 21st Century: A Vision and Strategy." *Belle Newsl.* 15(3):3-5.

Long, CM; Beck, BD. 2009. "Study of Chinese print workers claims to provide the first human evidence of the clinical toxicity of long-term nanoparticle exposures." *InterNano: Resources for Manufacturing* [online newsletter]. Accessed at <http://www.internano.org/content/view/306/1/>, October 29.

Bailey, LA; Goodman, JE; Beck, BD. 2009. "Proposal for a revised Reference Concentration (RfC) for manganese based on recent epidemiological studies." *Regul. Toxicol. Pharmacol.* 55:330-339.

Nascarella, MA; Calabrese, EJ; Beck, BD. 2009. "Quantifying hormetic (biphasic) dose-responses in the assessment of nanoparticle toxicology." In *Conference Proceedings: International Conference on the Environmental Implications and Applications of Nanotechnology, University of Massachusetts Amherst, June 9-11.*

Goodman, JE; Beyer, LA; Beck, BD. 2009. Comment on "Evaluation of evidence for infection as a mode of action for induction of rat lymphoma" by Caldwell *et al.* (Letter). *Environ. Mol. Mutagen.* 50:4-5.

Petito Boyce, C; Lewis, AS; Sax, SN; Eldan, M; Cohen, SM; Beck, BD. 2008. "Probabilistic analysis of human health risks associated with background concentrations of inorganic arsenic: Use of a margin of exposure approach." *Hum. and Ecol. Risk Assess.* 14(6):1159-1201. ****Awarded HERA Paper of the Year 2008 in the category of Human Health Risk Assessment.**

Beck, BD; Lewis, AS; Slayton, TM. 2008. "Arsenic." In *Encyclopedia of Quantitative Risk Analysis and Assessment (Volumes 1-4)*. (Eds.: Melnick, EL; Everitt, BS), John Wiley & Sons, West Sussex, England.

Kenyon, EM; Klimecki, WT; El-Masri, H; Conolly, RB; Clewell, HJ; Beck, BD. 2008. "How can biologically-based modeling of arsenic kinetics and dynamics inform the risk assessment process? – A workshop review." *Toxicol. Appl. Pharmacol.* 232:359-368.

Seeley, MR; Beck, BD. 2008. Commentary on "Hormesis and Toxic Torts." *Hum. and Exp. Tox.* 27(2):115-6.

Beck, B. 2008. Letter to the editor re: "Effects of MTBE on Leydig cell tumors in Sprague-Dawley rats: Range of possible poly-3 results." *Regul. Toxicol. Pharmacol.* 50:430.

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Saxe, JK; Wannamaker, EJ; Conklin, SW; Shupe, TF; Beck, BD. 2008. Reply to comment from Solo-Gabriele *et al.* on "Evaluating landfill disposal of chromated copper arsenate (CCA) treated wood and potential effects on groundwater: Evidence from Florida" by Jennifer K. Saxe, Eric J. Wannamaker, Scott W. Conklin, Todd F. Shupe and Barbara D. Beck [*Chemosphere* 66(3) (2007) 496-504]" *Chemosphere* 70:1932-1934.

Goodman, JE; Gaylor, D; Beyer, LA; Rhomberg, LR; Beck, BD. 2008. "Effects of MTBE on the reported incidence of Leydig cell tumors in Sprague-Dawley rats: Range of possible poly-3 results." *Regul. Toxicol. Pharmacol.* 50:273-284.

Beck, BD; Calabrese, EJ; Slayton, TM; Rudel, R. 2008. "The use of toxicology in the regulatory process." In *Principles and Methods of Tox., Fifth Edition.* (Ed.: Hayes, AW), Taylor & Francis, Philadelphia, PA, p45-102.

Petito Boyce, C; Lewis, AS; Butler, EL; Saxe, JK; Beck, BD. 2007. Letter to the editor re: Datta *et al.*, 2006: "Arsenic biogeochemistry and human health risk assessment in organo-arsenical pesticide-applied acidic and alkaline soils: An incubation study." *Sci. Total Environ.* 388(1-3):372-375.

Seeley, MR; Beck, BD. 2007. Commentary on "Hormesis and Toxic Torts." *Belle Newsl.* 14:2(16).

Bowers, TS; Beck, BD. 2007. Response to second comment by Bergdahl on "What is the meaning of non-linear dose-response relationships between blood lead concentration and IQ" and our earlier response. *Neurotoxicol.* 28:706.

Bowers, TS; Beck, BD. 2007. Response to comments by Bergdahl, Hornung *et al.*, Jusko *et al.*, and Svendsgaard *et al.* on "What is the meaning of non-linear dose-response relationships between blood lead concentration and IQ." *Neurotoxicol.* 28:196-201.

Saxe, JK; Wannamaker, EJ; Conklin, SW; Shupe, TF; Beck, BD. 2007 "Evaluating landfill disposal of chromated copper arsenate (CCA) treated wood and potential effects on groundwater: Evidence from Florida." *Chemosphere* 66:496-504.

Bowers, TS; Beck, BD. 2006. "What is the meaning of non-linear dose-response relationships between blood lead concentrations and IQ?" *Neurotoxicol.* 27:520-524.

Beck, BD. 2006. "An evaluation of the US Environmental Protection Agency definition of a risk assessment." *Hum. Exp. Toxicol.* 25:3-5.

Beck, BD; Seeley, MR; Ghosh, RS; Drivas, PJ; Shifrin, NS. 2006. "Human health risk assessment of cyanide compounds in water and soil." In *Cyanide in Water and Soil: Chemistry, Risk, and Management.* (Eds.: Dzombac, D; Ghosh, R; Wong-Chong, GM), Taylor & Francis, Boca Raton, FL, p309-330.

Braverman, LE; Pearce, EN; He, X; Pino, S; Seeley, M; Beck, B; Magnani, B; Blount, BC; Firek, A. 2006. "Effects of six months of daily low-dose perchlorate exposure on thyroid function in healthy volunteers." *J. Clin. Endocrinol. Metab.* 91(7):2721-2724.

Lewandowski, TA; Hayes, AW; Beck, BD. 2005. "Risk evaluation of occupational exposure to methylene dianiline and toluene diamine in polyurethane foam." *Hum. Exp. Toxicol.* 24:655-662.

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Cohen, SM; Arnold, LL; Eldan, M; Schoen, AS; Beck, BD. 2005. "Methylated arsenicals: The implications of metabolism and carcinogenicity studies in rodents to human risk assessment." *Crit. Rev. Toxicol.* 36:99-133.

Beck, BD. 2005. "An evaluation of the EPA definition of a risk assessment." *Belle Newsl.* 13(1):4-6.

Long, CM; Seeley, M; Beck, BD. 2005. "Tiny particles, large data gaps: A risk assessment perspective on nanotechnology." *Risk Policy Rep.* 12(13):12-14.

Petito Boyce, C; Beck, BD; Dubé, EM; Lewandowski, TA. 2005. Letter to the Editor re: Hemond and Solo-Gabriele, 2004: "Children's exposure to arsenic from CCA-treated wooden decks and playground structures." *Risk Anal.* 25(1):1-5.

Lewandowski, TA; Seeley, MR; Beck, BD. 2004. Response to Letter to the Editor re: Zoeller, RT, 2004: "Interspecies differences in susceptibility to perturbation of thyroid homeostasis requires a definition of 'sensitivity' that is informative for risk analysis." *Regul. Toxicol. Pharmacol.* 40:381-382.

Dubé, EM; Petito Boyce, C; Beck, BD; Lewandowski, TA; Schettler, S. 2004. "Assessment of potential human health risks from arsenic in CCA-treated wood." *Hum. Ecol. Risk Assess.* 10:1019-1067.

Lewandowski, TA; Beck, BD. 2004. Letter to the Editor re: Tsuji *et al.*, 2004. "Additional support for derivation of an acute/subchronic reference level for arsenic." *Regul. Toxicol. Pharmacol.* 40:370-371.

Lewandowski, TA; Seeley, MR; Beck, BD. 2004. "Interspecies differences in susceptibility to perturbation of thyroid homeostasis: A case study with perchlorate." *Regul. Toxicol. Pharmacol.* 39(3):348-362.

Schoen, A; Beck, BD; Sharma, R; Dubé, EM. 2004. "Arsenic toxicity at low doses: Epidemiological and mode of action considerations." *Toxicol. Appl. Pharmacol.* 198(3):253-267. ****Named as one of the top 10 published papers demonstrating application of risk assessment by the Risk Assessment Specialty Section of the Society of Toxicology, 2004.**

Lewandowski, TA; Seeley, MR; Beck, BD. 2003. "The importance of interspecies differences in susceptibility to perchlorate for human health risk assessment." In *Proceedings of the Groundwater Resources Association of California Symposium: Perchlorate in Groundwater: Occurrence, Analysis & Treatment*, July.

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Beck, BD; Mattuck, RL; Bowers, TS. 2002. "Adult:child differences in the intraspecies uncertainty factor: A case study using lead." *Hum. Ecol. Risk Assess.* 8(4):877-884.

Beck, BD; Slayton, TM; Farr, CH; Sved, DW; Crecelius, EA; Holson, JF. 2002. "Systemic uptake of inhaled arsenic in rabbits." *Hum. Exp. Toxicol.* 21:205-215.

Mattuck, RL; Beck, BD; Bowers, TS; Cohen, JT. 2001. "Recent trends in childhood blood lead levels." *Arch. Environ. Health.* 56(6):536-541.

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Seeley, MR; Tonner-Navarro, LE; Beck, BD; Deskin, R; Feron, VJ; Johanson, G; Bolt, HM. 2001. "Procedures for health risk assessment in Europe." *Regul. Toxicol. Pharmacol.* 34:153-169.

Beck, BD; Mattuck, RL; Bowers, TS; Cohen, JT; O'Flaherty, E. 2001. "The development of a stochastic physiologically-based pharmacokinetic model for lead." *Sci. Total Environ.* 274:15-19.

Beck, BD; Clewell, III, HJ. 2001. "Uncertainty/safety factors in health risk assessment: Opportunities for improvement." *Hum. Ecol. Risk Assess.* 7(1):203-207.

Beck, BD; Slayton, TM; Calabrese, EJ; Baldwin, L; Rudel, R. 2001. "The use of toxicology in the regulatory process." In *Principles and Methods of Tox., Fourth Edition.* (Ed.: Hayes, AW), Taylor & Francis, Philadelphia, PA, p23-75.

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Abernathy, CO; Liu, Y-P; Longfellow, D; Aposhian, HV; Beck, BD; Fowler, B; Goyer, R; Menzer, R; Rossman, T; Thompson, C; Waalkes, M. 1999. "Arsenic: Health effects, mechanisms of actions, and research issues." *Environ. Health Perspect.* 107(7):593-597.

Connolly, RB; Beck, BD; Goodman, JI. 1999. "Stimulating research to improve the scientific basis of risk assessment." *Toxicol. Sci.* 49:1-4.

Goering, PL; Aposhian, HV; Mass, MJ; Cebrian, M; Beck, BD; Waalkes, M. 1999. "The enigma of arsenic carcinogenesis: role of metabolism." *Toxicol. Sci.* 49:5-14.

Shifrin, NS; Beck, BD. 1999. "Debating RBCA." *Civil Engineering* Feb:10-11.

Beyer, LA; Beck, BD. 1998. "Confronting challenges in integrated risk assessment." *Environ. Compliance Litigation Strategy* 14(5):3-4.

Cohen, JT; Beck, BD; Bowers, TS; Bornschein, RL; Calabrese, EJ. 1998. "An arsenic exposure model: Probabilistic validation using empirical data." *Hum. Ecol. Risk Assess.* 4(2):341-377.

Valberg, PA; Beck, BD; Boardman, PD; Cohen, JT. 1998. "Likelihood ratio analysis of skin cancer prevalence associated with arsenic in drinking water in the USA." *Environ. Geochem. Health* 20(2):61-66.

Beck, BD; Cohen, JT. 1997. "Risk assessment for criteria pollutants vs. other non-carcinogens: The difference between implicit and explicit conservatism." *Hum. Ecol. Risk Assess.* 3(4):617-626.

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Valberg, PA; Beck, BD; Bowers, TS; Keating, JL; Bergstrom, PD; Boardman, PD. 1997. "Issues in setting health-based cleanup levels for arsenic in soil." *Regul. Toxicol. Pharmacol.* 26:219-229.

Beck, BD. 1997. "The use of information on susceptibility in risk assessment: State of the science and potential for improvement." *Environ. Toxicol. Pharmacol.* 4(4):229-234.

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Chappell, WR; Beck, BD; Brown, KG; Chaney, R; Cothorn, CR; North, KJ; Thornton, I; Tsongas, TA. 1997. "Inorganic arsenic: A need and an opportunity to improve risk assessment." *Environ. Health Perspect.* 105(10):1060-1067.

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Publications – Other Publications/Reports

National Research Council, Division of Earth and Life Sciences, Water Science and Technology Board, Committee on Future Options for Management in the Nation's Subsurface Remediation Effort. 2012. Alternatives for Managing the Nation's Complex Contaminated Groundwater Sites. National Academies Press, Washington, DC, 339p. (Dr. Beck was a member of the panel that prepared this report under the auspices of the National Research Council.)

Beck, BD. 2009. "Congress should take risk-based approach to lead-content law." *Wall Street J.* 253(88):A14. April 16.

Barbara D. Beck, Ph.D., DABT, FATS

Valberg, PA; Beck, BD. 1993. "Recalculation of the Arsenic Cancer Slope Factor." Report to IRIS Information Submission Desk (US EPA), August 9.

Beck, BD; Goodman, G, Hemphill, CP. 1993. "Summary of Naphthalene Toxicity Information and Derivation of a Naphthalene Oral RfD." Draft report to US EPA Naphthalene RfD Work Group August 30.

Beck, BD. 1987. "Acute and Chronic Toxicity of Trichloroethylene," "Non-carcinogenic Risk Assessment," "The Role of Peroxisomal Proliferation in Trichloroethylene Hepatotoxicity and Carcinogenicity." Draft NESCAUM (Northeast States for Coordinated Air Use Management) Health Assessment Document.

Beck, BD 1982. "The use of bioassays to assess the toxicity of particulates; evaluation of bioassays." In *Appendix 2: Toxic Effects of Airborne Particulates*, p119 - 167, Appendix to Report "Analysis of Health Effects Resulting from Population Exposures to Ambient Particulate Matter." Prepared by Harvard University, Energy and Environmental Policy Center, for US Dept. of Energy, Agreement No. DE-AC02-81EV10731.

Beck, BD. 1975. "*Activity of three murein hydrolases during the cell cycle of Escherichia coli. K-12.*" Ph.D. Dissertation, Tufts University.

Invited Lectures/Other Presentations – 1985-Present

4/12 – "Dose-Response Assessment for Arsenic: A Case Study for Why the LNT Doesn't Work." Presented at the 2012 Annual Meeting of the International Dose-Response Society, University of Massachusetts, Amherst, MA, April 25.

12/11 – "Inorganic Arsenic: Health Risk Assessment." Presented at the University of Connecticut, School of Pharmacy, Storrs, CT.

4/11 – Testimony of Barbara D. Beck, Ph.D, DABT, FATS, ERT regarding "Discussion Draft of H.R. ___, a Bill that would Revise the Consumer Product Safety Improvement Act." Submitted to US House of Representatives, Committee on Energy and Commerce, Subcommittee on Commerce, Manufacturing, and Trade Hearing, April 7.

4/10 – "Medical Monitoring and Environmental Exposures." Presented in a session entitled "Presenting Effective Arguments to Courts Against Awarding Medical Monitoring Damages" at the American Chemical Institute's Chemical Products Liability and Environmental Litigation Conference, Chicago, IL, April 28.

3/10 – "These Kids are Driving Me Crazy: The Science of Sensitive Subpopulations." Presented at the DRI Toxic Torts and Environmental Law Seminar, New Orleans, LA, March 18.

3/10 – "Weighing Complex Data in Risk Decisions: Concepts of Evidence-Based Toxicology." Roundtable discussion presented at the Society of Toxicology Annual Meeting, Salt Lake City, UT, March 9.

2/10 – "Buckyballs and Nanotubes: Insurance Issues Related to Nanotechnology." Panelist for talk presented at the American Bar Association's 18th Annual Insurance Coverage Litigation Committee Midyear Program. Phoenix, AZ, February 26.

Barbara D. Beck, Ph.D., DABT, FATS

1/10 – "Overview of Arsenic Epidemiology." Presented as part of the EPRI Arsenic Project Scientific Review Panel Meeting, Research Triangle Park, NC, January 28.

12/09 – "Current Risk from Exposure to Nanoparticles." Presented as part of webinar held by Day Pitney, LLP, December 9.

4/09 – "Testimony of Barbara D. Beck, Ph.D, DABT Regarding the Consumer Product Safety Improvement Act: The Need for a Risk-Based Approach." CPSIA Congressional Briefing, Washington, DC, April 1.

3/09 – "What is an Adverse Effect in the Age of 'Omics?" Roundtable discussion presented at the Society of Toxicology Annual Meeting, Baltimore, MD, March 18.

12/08 – "Inorganic Arsenic: Health Risks and Regulations." Presented at the University of Connecticut, School of Pharmacy, Storrs, CT.

5/08 – "Risk Assessment for Essential Metals: Considerations for 'The Path Forward.'" Presented at the Workshop on Health Risk Assessment of Essential Metals, Ottawa, Canada.

5/08 – "Nanotechnology: An Overview of Environmental Health & Safety Issues." Presented as part of webinar held by Day Pitney, LLP.

3/08 – "Challenge in Using Hazard-based Binning in Risk Assessment & Risk Management." Presented at the Society of Toxicology 47th Annual Meeting, Seattle, WA.

1/08 – "Determining Risks to Background Arsenic Using a Margin-of-Exposure Approach." Presented at the Society of Risk Analysis, New England Chapter Meeting, Boston, MA.

10/07 – "An Update on Risk Management Approaches for Nanotechnology: Recent Regulatory Activities and Trends Affecting Product Development." Presented at the Lux Executive Summit, Cambridge, MA.

9/07 – "Is Smaller Always Worse: What Do We Know Now About the Toxicity and Potential Risks of Nanoparticles? What More Do We Need to Know?" Presented at the PANWAT SOT Meeting, Seattle, WA.

7/07 – "The Role of Regulatory Science in Tort Litigation." Presented as part of the Environmental Law Institute's *Critical Developments in Toxic Torts Seminar Series*, Washington, DC.

3/07 – "Using Modeling to Inform the Risk Assessment Process for Arsenic." Presentation at the Society of Toxicology 46th Annual Meeting, Charlotte, NC.

2/07 – "Health Risks of Inorganic Arsenic: A Serious Threat or are there Better Ways to Spend our Resources?" Presented at the Risk Assessment Forum, Yale University, New Haven, CT.

12/06 – "Risk Assessment: An Overview." Presented at the University of Connecticut, School of Pharmacy, Storrs, CT.

12/06 – "Industry Challenges – Getting the Lead Out: Health Risk Considerations." Presented at Plumbing Manufacturers Association and Copper Development Association Roundtable, Chicago, IL.

Barbara D. Beck, Ph.D., DABT, FATS

10/06 – "Use of Nanoscale Zero-Valent Iron (NZVI) Particles for Groundwater Remediation: A Qualitative Risk Assessment." Presented at the University of Massachusetts Soils, Sediments, and Water Conference, Amherst, MA.

9/06 – "Overview of Science Issues Associated with Assessing Lead Health Effects." Presented at the Battery Council International Convention, Tucson, AZ.

4/06 – "Interpretation of Biomonitoring Studies to Assess Exposure and Risk of Inorganic Arsenic: Confounding by Other Sources of Arsenic." Presented at Toxicology and Risk Assessment Conference, Cincinnati, OH.

1/06 – "A Qualitative Risk Assessment to Evaluate the Remediation of Trichloroethylene by Nanoscale Zero-Valent Iron Particles." Presented at the 1st International Conference on Nanotoxicology: Biomedical Aspects, Miami, FL.

12/05 – "Regulation of Nanotechnology in the Environment and Workplace: Comparative Approaches." Presented at the 2005 Materials Research Society Meeting Session S9: Regulation of Nanotechnology and Nanomaterials, Boston, MA.

9/05 – "Recommendations for DMA Assessment." Presented on behalf of MAA Research Task Force, US EPA, Washington, DC.

9/05 – "Characterization of DMA Risk Using a Nonlinear Dose-Response Approach." Presented on behalf of MAA Research Task Force, US EPA, Washington, DC.

3/05 – "The Life of a Consultant." Society of Toxicology 44th Annual Meeting, New Orleans, LA.

3/04 – "Arsenic Methylation: Considerations for Risk Assessment." Society of Toxicology 43rd Annual Meeting, Baltimore, MD.

1/04 – "Lack of Relevance of DMA-Induced Rat Bladder Tumors for Human Risk Assessment: Metabolism and Disposition Studies of DMA and MMA." Presented to Office of Pesticide Programs, US EPA, Washington, DC.

12/03 – "Selected Comments on Draft EPA Exposure & Risk Assessments for CCA-Treated Wood Using SHEDS-Wood Model." Presented at FIFRA SAP Meeting, Washington, DC.

11/03 – "Risk Assessment: An Overview." University of Connecticut, School of Pharmacy, Storrs, CT.

10/03 – "Comparison of a Probabilistic/Mechanistic Approach to a Deterministic/Empirical Approach for Evaluating CCA-Treated Wood Exposures." Presented at 19th Annual International Conference on Soils, Sediments and Water, Amherst, MA.

4/03 – "Evaluation of Potential Human Health Risks from Copper Azole-Treated Wood." Presented at 99th Annual Meeting of the American Wood-Preservers' Association, Boston, MA.

11/02 – "A Case Study of Arsenic Risk Assessment and Risk Management." Presented at NIEHS DERT Science Retreat, Wilmington, NC.

10/02 – "CCA-Treated Wood: Science and Politics." Presented at University of Massachusetts, Amherst.

Barbara D. Beck, Ph.D., DABT, FATS

10/02 – "Research Activities to Refine Human Health Risk Assessment for CCA-Treated Wood." Presented to CPSC, Washington, DC.

8/02 – "Comments on EPA Background Documents Regarding SHEDS-Wood Model." Presented at Science Advisory Panel meeting, Washington, DC.

1/02 – "Principles of Toxicology." Harvard School of Public Health, Boston, MA.

12/01 – "Risk Assessment: An Overview." University of Connecticut, School of Pharmacy, Storrs, CT.

10/01 – "Comments on EPA Background Documents Regarding CCA-Treated Wood." Presented to Scientific Advisory Panel, Washington, DC.

10/01 – "Statement by Barbara D. Beck re: Arsenic in Drinking Water: An Update on the Science, Benefits and Cost." Presented at Congressional Hearing, Washington, DC.

8/01 – "Focused Evaluation of Health Risks from Exposure to Arsenic Associated with CCA-Treated Wood." Presented to Consumer Product Safety Commission, Washington, DC.

6/01 – "Adult:Child Differences in the Intra-Species Uncertainty Factor: A Case Study Using Lead." Presented at the Fifth Annual Workshop on Evaluation of Default Safety Factors in Health Risk Assessment, UMDNJ-New Jersey Medical School, Newark, NJ.

3/01 – "Risk Assessment for Metals: Physiologically-Based Pharmacokinetic Models for Metals." Society of Toxicology 40th Annual Meeting, San Francisco, CA.

6/00 – "EPRI-Sponsored Arsenic Research Program – Application to Arsenic Cancer Risk Assessment." SEGH Fourth International Conference on Arsenic Exposure and Health Effects, San Diego, CA.

5/00 – Invited Participant/Speaker to the Fourth Annual Workshop on Evaluation of Uncertainty/Safety Factors in Health Risk Assessment, Nutley, NJ.

4/00 – "Development of a Stochastic Physiologically-Based Pharmacokinetic Model for Lead." Toxicology and Risk Assessment Approaches for the 21st Century Conference, Kings Island, OH.

6/99 – "The Development of a Stochastic Physiologically-Based Pharmacokinetic Model for Lead." US EPA Workshop on Lead Model Development: Probabilistic Risk Assessment and Biokinetic Modeling, Raleigh-Durham, NC.

6/99 – "The Development of a Stochastic Physiologically-Based Pharmacokinetic Model for Lead." WHO/IARC Conference on Lead Exposure, Reproductive Toxicity and Carcinogenicity, Gargnano, Italy.

3/99 – "Strategies for Prosecuting and Defending Toxic Tort Litigation – A Toxicologist's Perspective." ABA Annual Conference on Environmental Law, Keystone, CO.

3/99 – "Principles of Toxicology." Harvard Center for Risk Analysis Course "Analyzing Risk: Assessment and Management," Boston, MA.

2/99 – "Comments on EPA Perchlorate RfD Draft Document." Perchlorate Peer Review Workshop, San Bernardino City Council Chambers, San Bernardino, CA.

Barbara D. Beck, Ph.D., DABT, FATS

1/99 – "Risk Assessment: An Overview." Harvard School of Public Health Principles of Toxicology Course, Boston, MA.

12/98 – "Risk Assessment: An Overview." University of Connecticut Advanced Toxicology Course, Storrs, CT.

11/98 – "EPA's Proposed Residential Lead Standards." US EPA's Children's Health Protection Advisory Committee Meeting, New Carrollton, MD.

10/98 – "What are the Characteristics of a Well-designed Environmental Lead/Blood Lead Study?" National Environmental Policy Institute's Conference "Protecting Children's Health: Assessing the Relationship of Soil Lead to Blood Lead," Washington, DC.

10/98 – "Principles of Toxicology." Harvard Center for Risk Analysis Course "Analyzing Risk: Assessment and Management," Boston, MA.

10/98 – "Cumulative Risk – Case Study." American Law Institute-American Bar Association Course of Study, "Risk Assessment and Risk Management in Environmental Law," Washington, DC.

10/98 – "Introduction to Recent Developments in Risk Assessment: Aggregate Exposure and Cumulative Risk." American Law Institute-American Bar Association Course of Study, "Risk Assessment and Risk Management in Environmental Law," Washington, DC.

4/98 – "Principles of Toxicology." Harvard Center for Risk Analysis Course "Analyzing Risk: Assessment and Management," Boston, MA.

3/98 – "Impact of Arsenic (As_i) Metabolism on Human Populations: Dose-Response Relationships in Arsenic-Induced Cancers." Society of Toxicology 37th Annual Meeting, Seattle, WA.

3/98 – "Effective Risk Communication: Avoiding the Pitfalls." Continuing Education Course, Society of Toxicology 37th Annual Meeting, Seattle, WA.

12/97 – "Key Issues Raised by EPA's Proposed Ozone Standards and Supporting Analysis." Society for Risk Analysis, Annual Meeting and Exposition, Washington, DC.

5/97 – "Testimony on Analysis of Risk Assessment Used by the EPA in Support of Its Proposed Ozone Standards." Before the Joint Hearing of the Health and Environment Subcommittee and the Oversight and Investigations Subcommittee, Commerce Committee, US House of Representatives, Washington, DC.

3/97 – "Principles of Toxicology." Harvard Center for Risk Analysis Course "Analyzing Risk: Assessment and Management," Boston, MA.

12/96 – "Risk Assessment for Criteria Pollutants *versus* Other Noncarcinogens: The Difference Between Implicit and Explicit Conservatism." Rutgers University 2nd Annual Workshop "The Evaluation of EPA 10X Safety Factors in Health Risk Assessment," Nutley, NJ.

9/96 – "The Quantitative Use of Information on Susceptibility in Risk Assessment: Where is it Working or Not Working? How Can We Make It Better?" Third Annual NHEERL Symposium on Susceptibility and Risk Assessment, Raleigh, NC.

Barbara D. Beck, Ph.D., DABT, FATS

9/96 – "Principles of Toxicology." Harvard Center for Risk Analysis Course "Analyzing Risk: Assessment and Management," Boston, MA.

8/96 – "The Role of Risk Assessments in Superfund." American Bar Association, Orlando, FL.

12/95 – "Use of Monte Carlo Arsenic (As) Model to Predict Distributions of Urine Arsenic at a Mining and Milling Site." Society for Risk Analysis, Honolulu, HI.

10/95 – "Use of Information on Variations in Susceptibility – Ozone." ILSI Risk Science Institute Workshop on Human Variability, Washington, DC.

10/95 – "Evaluation of Health Effects Resulting from Accidental Exposures." Michigan Society for Risk Analysis, Dearborn, MI.

9/95 – "Principles of Toxicology." Harvard Center for Risk Analysis Course on "Analyzing Risk: Assessment and Management," Boston, MA.

6/95 – "Validation of an Arsenic Exposure Model at a Mining and Milling Site through Urinalysis." "Use of an Arsenic Exposure Model at a Gold Mining and Milling Site." Second International Conference on Arsenic Exposure and Health Effects, San Diego, CA.

7/94 – "A Review of Scientific Issues Pertaining to Arsenic." Society for Environmental Geochemistry and Health Conference on Lead and Arsenic Exposure in the Rocky Mountains, Salt Lake City, UT.

5/94 – "Use of Lead Exposure Assessment in the Regulatory Process." International Lead Zinc Research Organization Lead Exposure Assessment Workshop, Research Triangle Park, NC.

3/94 – "Non-linearities in Arsenic Risk Assessment." Boston Risk Assessment Group, Cambridge, MA.

3/93 – "Basic Risk Assessment: Current Developments." Continuing Education Course, Society of Toxicology, New Orleans, LA.

3/92 – "A Review of the Bioavailability of Petroleum Constituents." West Coast Soils and Groundwater Conference, Long Beach, CA.

3/92 – "Bioavailability of Metals and Organics." Workshop on Human Health and Ecological Risk Assessments for Contaminated Sites, Toronto, Canada.

2/92 – "Improvements in Quantitative Noncancer Risk Assessment." Chair of Symposium of Society of Toxicology Meeting, Seattle, WA.

2/92 – "Perspectives on the Development of Soil Cleanup Levels at Mining Sites." Colorado Bar Association, Denver, CO.

11/91 – "Environmental Law Update: Toxic Torts and How Clean is Clean?" Squire, Sanders & Dempsey, Cincinnati, OH.

10/91 – "Risk Assessment for Indoor Air: Evaluating Risks to Susceptible Populations." NATO/CCMS-COST 613 Joint Workshop, Kloster Banz, Bavaria, Germany.

Barbara D. Beck, Ph.D., DABT, FATS

2/91 – "An Update on Exposure and Risks of Lead." Chair of Symposium at Society of Toxicology Meeting.

2/90 – "Inhalation Risk Assessment." Chair of Symposium at Society of Toxicology Meeting.

1/90 – "The Use of Structure Activity Relationships for Alkyl Phenol Risk Assessment." New England Society for Risk Analysis, Boston, MA; RJR/Nabisco, Winston-Salem, NC.

1/90 – "The Use of Structure Activity Relationships in Risk Assessment." Harvard School of Public Health, Boston, MA; Northeastern University, Boston, MA.

11/89 – "How Protection Levels are Developed and What They Mean." Course on Risk Assessment and Epidemiology for Lawyers, Harvard School of Public Health, Boston, MA.

9/89 – "An Environmental Health Case Study." Tufts Medical School, Boston, MA.

3/89 – "Impact of Lead Derived from Mining Sources on Blood Lead." Boston Risk Assessment Group, Boston, MA.

2/89 – "Ecological and Health Risk Assessment for Arsenic in Soil." Society of Toxicology, Atlanta, GA.

12/88, 1/89, 9/89, 10/89, and 4/90 – "Risk Assessment for Hazardous Waste Sites, Including a Perspective on Toxic Torts." Executive Enterprises, Inc., Washington, DC, Chicago, IL, Philadelphia, PA, and Orlando, FL.

10/88 – "Ozone Toxicology and Risk Assessment." Harvard School of Public Health, Boston, MA.

10/88 – "Risk Assessment for Arsenic in Soil." University of Massachusetts, Amherst, MA.

9/88 – "The Use of Animal Bioassays to Assess Lun28 Toxicity." NESCAUM, Princeton, NJ.

6/88 – "Review of Epidemiological and Toxicological Studies on Mining Derived Lead." US EPA, Philadelphia, PA.

3/88 – "Assessment of Impact on Blood Lead of Lead from Mining Sources." US EPA, Washington, DC.

2/88 – "Regulatory Toxicology." Tufts University School of Medicine, Boston, MA.

12/87 – "Risk Assessment for Soil." Harvard School of Public Health, Boston, MA.

12/87 – "Health Effects of Ozone and the Clean Air Act." New England Chapter for Society for Risk Analysis, Cambridge, MA.

11/87 – "Health Effects of Ozone." Harvard School of Public Health, Boston, MA.

9/87 – "Health Risk Assessment for Soil." University of Massachusetts, Amherst, MA.

4/87 – "Key Issues in Addressing Adverse Effects of Ozone." University of Massachusetts, Amherst, MA.

1/87 – "Risk Assessment for Dioxin in Soil." MIT, Cambridge, MA.

Barbara D. Beck, Ph.D., DABT, FATS

10/86 – "Pulmonary Toxicology." Harvard School of Public Health, Boston, MA.

10/86 – "Risk Assessment." University of Massachusetts, Amherst, MA.

10/86 – "Regulatory Toxicology." Tufts University School of Medicine, Boston, MA.

7/86 – "Health Effects of Indoor Air Pollutants." Region I US EPA, Lexington, MA.

6/86 – "Health Effects of Radon." Society of Women Engineers, Hartford, CT.

6/86 – "Contacting the Health and the Medical Community About the Adverse Effects of Ozone." US EPA, Washington, DC.

6/86 – "Animal Toxicology." US EPA Region I, Boston, MA.

4/86 – "Health Effects of Ozone." NESCAUM meeting, Newport, RI.

2/86 – "Pulmonary Toxicology." US EPA Region I, Boston, MA.

12/85 – "Toxicology of Dioxin." US EPA Dioxin Workshop, Lexington, MA.

11/85 – "Animal Bioassays." Harvard School of Public Health, Boston, MA.

11/85 – "Pulmonary Toxicology." Harvard School of Public Health, Boston, MA.

10/85 – "Indoor Air Pollution." Air Pollution Control Association meeting, Enfield, CT.

1/85 – "Indoor Air Pollution." NESCAUM workshop, Northampton, MA.

Editor

2010 to Present. Associate Editor. *Toxicology and Applied Pharmacology*.

2006 to 2010. Specialty Editor. *Toxicology and Applied Pharmacology*.

1995 to Present. *Human and Experimental Toxicology* (Editorial Board).

1991. *Trace Substances in Environmental Health: Supplement to Volume 14 (1992) of Environmental Geochemistry and Health. Proceedings of the 25th Annual Conference on Trace Substances in Environmental Health*, May 20-23, Columbia, MO.

Reviewer

Annals of Internal Medicine; Cancer Research; Environmental Health Perspectives; Environmental Research; Fundamental and Applied Toxicology; Human and Ecological Risk Assessment; Human and Experimental Toxicology; Journal of Society of Environmental Geochemistry and Health; Regulatory Toxicology and Pharmacology; Toxicological Sciences

Barbara D. Beck, Ph.D., DABT, FATS

Continuing Education Courses

- Cutaneous Toxicity: *In Vitro* Methods for Toxicity and Safety Evaluation, Society of Toxicology, 2012.
- Epigenetics in Toxicology: Introduction, Mechanistic Understanding, and Applications in Safety Assessment, Society of Toxicology, 2011.
- Technologies and Tools for Toxicity Testing in the 21st Century, Society of Toxicology, 2010.
- Immunology for Toxicologists, Society of Toxicology, 2009.
- Nanotoxicology: The Science of Developing a Safe Technology, Society of Toxicology, 2008.
- Dose-Response Modeling for Occupational and Environmental Risk Assessment, Society of Toxicology, 2008.
- Toxicology and Molecular Biology of Tissue Repair, Society of Toxicology, 2007.
- Use of Genome Databases for Toxicology, Society of Toxicology, 2006.
- Neuropathology for the Toxicologist, Society of Toxicology, 2006.
- Fundamentals of Nanotechnology: Chemistry, Exposure, Environmental/Health Assessments and Societal Impacts, Society of Toxicology, 2005.
- Integrating Toxicologic Pathology into Compound Evaluation and Risk Assessment, Society of Toxicology, 2002.
- Rodent Toxicity and Nongenotoxic Carcinogenesis: Knowledge-Based Human Risk Assessment from Molecular Mechanisms, Society of Toxicology, 2000.
- An Overview of the Tier 1 Screening Battery Proposed by EDSTAC, Society of Toxicology, 1999.
- Benchmark Dose, Society of Toxicology, 1997.
- Principles of Metal Toxicology, Society of Toxicology, 1997.
- Epidemiology for Toxicologists, Society of Toxicology, 1996.
- International Harmonization: Update on Scientific and Regulatory Issues. Part II: Toxic Substances and Environmental Issues, Society of Toxicology, 1994.
- Case Studies in Risk Assessment: Emphasis on Exposure, Society of Toxicology, 1992.
- Environmental Toxicology, Society of Toxicology, 1991.
- Target Organ Toxicity: Advanced Hepatotoxicity, Society of Toxicology, 1990.
- Toxicity of Agents: Pesticides, Society of Toxicology, 1990.
- Neurotoxicology, Society of Toxicology, 1989.
- Respiratory Tract Toxicology by Classes of Agents, Society of Toxicology, 1988.
- Mid-America Course in Toxicology, 1988.
- Pulmonary Pathophysiology, University of Vermont Medical School, 1979.