



SUSAN D. CHAPNICK, M.S.

President and Principal Scientist

AREAS OF EXPERTISE

Development of quality assurance procedures for environmental investigations (Work Plans, Sampling and Analysis Plans, Quality Assurance Project Plans), determination of usability of chemical data for human health and ecological risk assessment and litigation support, quality assurance and quality control of environmental and biological measurements, quality assurance oversight and data validation, trace metals analysis, regulatory policy and guidance.

EDUCATION

M.S., Marine Science (chemical oceanography), University of South Carolina, Columbia, S.C. 1980.

B.A., *Magna Cum Laude, Phi Beta Kappa*, Biological Sciences, Barnard College, Columbia University, N.Y., N.Y. 1978.

PROFESSIONAL EXPERIENCE

1996 – present **NEW ENVIRONMENTAL HORIZONS, INC.**, Arlington, MA

President, Principal Scientist, and co-founder of NEH, Inc.

- Provide technical work products evaluating the validity and usability of environmental measurements in support of litigation, regulatory compliance, risk assessment and remediation for industrial and government clients and law firms.
- Develop, implement, document, and manage data quality programs for clients in support of environmental investigations (CERCLA RI/FS, NOAA Natural Resource Damage Assessment, RCRA, and MassDEP MCP). Acting Quality Assurance Officer at Superfund sites in Region I.
- Develop Work Plans, Quality Assurance Project Plans, Sampling and Analysis Plans; audit analytical laboratories, and review method development studies for regulatory compliance and technical validity.
- Expertise in: metals analysis and interpretation including speciation (*e.g.*, arsenic, chromium, mercury) and ultra-trace level techniques; standard wet chemistry techniques; QA/QC of environmental and biological measurements; interpretation of validity and usability of data for human health and ecological risk assessment, delineation of contamination, remedy selection, and regulatory compliance.
- Perform marketing and business development activities for NEH, Inc.

1992 - 1996 **GRADIENT CORPORATION**, Cambridge, MA

Program Manager & Director – Technical Services

- Managed environmental data quality programs for industrial (petroleum, chemical) and government (MADEP, NJDEP, EPA) clients at Superfund, state-led, and industrial sites.
- Developed business for data quality work at the level of \$500,000 revenue per year.
- Provided senior technical expertise in areas of analytical chemistry, QA/QC of environmental and biological measurements, data validation, and laboratory audits.
- Directed 20 staff in technical teams of risk assessment, site assessment, database management, and data quality and developed company-wide forecasting system to analyze market trends and billability.

1991 - 1992 **GRADIENT CORPORATION**, Cambridge, MA

Senior Analytical Chemist

- Provided review and interpretation of inorganic analytical chemistry data for validation and usability assessments.
- Developed validation protocols for project-specific needs and regulatory compliance with EPA Regions 1, 2, 3, 4, and 5 and NYSDEC ASP.

1988 - 1991 ENSECO - ERCO LABORATORY, Cambridge, MA

Director, Inorganic Laboratories and Organic Preparation Laboratory

- Directed operations with 30 staff in preparation, analysis, data review, and report preparation for environmental analyses in the metals, wet chemistry and organic preparation laboratories.
- Implemented process-improvement teams and cross-training of analysts to improve productivity and reduce costs.
- Managed over \$3 million in analytical services per year.
- Provided senior technical review of data for CLP, GLP, RCRA, and NPDES programs for a variety of media (soil, sediment, sludge, water, oil, biological tissue) and chemicals (*e.g.*, metals, total organic carbon, nitrate/nitrite, hexavalent chromium, sulfate, chloride, fluoride, phenols, cyanides, total nitrogen). Analytical instruments: inductively coupled plasma spectrometry (ICP), graphite furnace (GF) atomic absorption spectrophotometry (AA), cold vapor AA.

1986 - 1988 ENSECO - ERCO LABORATORY, Cambridge, MA

Program Administrator, Manager Sample Control Office and Manager Marine Trace Metals Laboratory

- Developed method for routine analysis of marine trace metals in support of ocean dumping monitoring for compliance with EPA.
- Managed sample receipt and log-in functions for laboratory.

1982 – 1986 MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA

Research Specialist, Trace Metals

- Developed method for ultra-trace level analysis of lead in seawater using graphite furnace atomic adsorption spectrophotometry (GFAA).
- Collected samples on oceanographic cruises for scientific investigations.

1981 - 1982 UNIVERSITY OF SOUTH CAROLINA, Columbia, SC

Research Specialist, Stable Isotope Geochemistry

- Analyzed water and oceanographic sediments for stable isotopes of Oxygen and Carbon using solid state mass spectrometry methods.

1980-1981 CORNELL UNIVERSITY, Ithaca, NY

Research Assistant, Environmental Microbiology

- Managed microbiology laboratory and investigated manganese and iron oxidation by fresh water bacteria. Co-authored several papers on manganese oxidizing bacteria.

PROFESSIONAL ASSOCIATIONS

American Chemical Society ♦ Society of Environmental Toxicology & Chemistry ♦ Licensed Site Professional Association ♦ Boston Bar Association

HONORS

LSPA Contribution to the Practice Award 2009 ♦ Dean's Research Fellowship, University of South Carolina ♦ Sigma Xi, University of South Carolina ♦ Phi Beta Kappa, Barnard College, Columbia University ♦ Science Fellowship for Graduate Study, Barnard College, Columbia University ♦ Award for Excellence in Scholarship, Barnard College, Columbia University

COMMUNITY SERVICE

Board of Directors, Massachusetts Licensed Site Professionals Association (LSPA): 2008 – present
Massachusetts Environmental Justice Network, *pro bono* technical support for litigation: 2000 to 2004
Science Steering Committee, Arlington Public Schools, Arlington, MA: 1999 - 2000
Children's Hospital, Boston, MA: Performed 300 hours of volunteer service, 1996 to 1998

PUBLICATIONS AND PRESENTATIONS

Rothman, N.C. and S.D. Chapnick. 2011. *PCBs in Schools – Lessons Learned from a NYC School Case Study*. Presentation at the 27th Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 2011.

Chapnick, S.D., Pitts, L.C., and Rothman, N.C. 2010. Arsenic and Thallium Data in Environmental Samples: Fact or Fiction? *Remediation*, Autumn 2010, pp 39-59.

Chapnick, S., L. Pitts, and N. Rothman. 2009. *Quality Assurance Is Not A Guarantee: False Positives and Negatives for Metals Data Used in Quantitative Risk Assessment*. Presentation at the Society of Environmental Toxicology and Chemistry (SETAC) North Atlantic Chapter Regional Annual Conference, Portland, ME, June 12, 2009.

Boynton, S., S. Chapnick, N. Rothman, and S. Greason. 2008. *Case Study – Using Real-Time Field measurements and Data Visualization for Efficient Site Assessment and Remedy Selection*. Presentation at the International Conference and Training Triad Investigations – New Approaches and Innovative Strategies, USEPA Office of Superfund Remediation and Technology Innovation and The environmental Institute, UMass, Amherst, MA, June 12, 2008.

Rothman, N.C. and S.D. Chapnick. 2007. *Soil Vapor Intrusion Data – Planning and QA/QC Evaluation for Risk Assessment*. Presentation at the 23rd Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 18, 2007.

Rothman, N.C. and S.D. Chapnick. 2007. *Sediment Data Quality for Use in Ecological Risk Assessment*. Presentation at the 23rd Annual Meeting, Hudson-Delaware Chapter of Society of Environmental Toxicology and Chemistry (SETAC), Stockton, New Jersey, April 26-27, 2007.

Chapnick, S.D., I.M. Phillips, and N.C. Rothman. 2006. *Evaluating Data Usability and Representativeness Under the New MCP Guidelines*. Presentation at the 22nd Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 16-19, 2006.

Rothman, N.C. and S.D. Chapnick. 2006. *Interpretation of Uncertainty in Dioxin/Furan Data for the Risk Assessor and Environmental Decision-Maker*. Presentation at the Society of Environmental Toxicology and Chemistry (SETAC) North Atlantic Chapter Regional Annual Conference at Portland, Maine, June 7-9, 2006.

Rothman, N.C. and S.D. Chapnick. 2005. *Demystifying Dioxin Data for the Environmental Decision-Maker*. Presentation at the 21st Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 19, 2005.

Chapnick, S.D., N.C. Rothman, and E. Denly. 2004. *Is "Presumptive Certainty" Generating Usable Data for Risk Assessment Under the MCP?* Presentation at the 20th Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 21, 2004.

Chapnick, S.D. and N.C. Rothman. 2004. *Does "Presumptive Certainty" Guarantee Usable Data?* Presentation at the *Society of Environmental Toxicology and Chemistry* (SETAC) North Atlantic Chapter meeting, June 10, 2004.

Chapnick, S.D. and N.C. Rothman. 2004. *Evaluation of Data Quality for MCP Submittals*. Half-day technical course developed and presented for the Massachusetts Licensed Site Professional Association (LSPA), May 25, 2004.

Rothman, N.C. and S.D. Chapnick. 2003. *Planning the Collection and Analysis of Environmental Data to Support Risk Assessment*, Presentation at the National Environmental Monitoring Conference (NEMC), Washington, D.C., July 22, 2003.

Chapnick, S.D. and N.C. Rothman. 2002. *Quality Solutions to Meet Both Human Health and Ecological Risk Assessment Data Needs*. Invited presentation at the *Society of Environmental Toxicology and Chemistry* (SETAC) North America 23rd Annual Meeting, November 16-20, 2002, Salt Lake City, Utah.

- Chapnick, S.D. and N.C. Rothman. 2001. *Quality of Environmental Measurements*. 8-hr Technical Course developed and given for the Massachusetts Licensed Site Professional Association, November 13, 2001.
- Chapnick, S.D. 2001. Practical Aspects of Data Quality for Ecological Risk Assessment. Workshop presented at the *Society of Environmental Toxicology and Chemistry (SETAC)*, North Atlantic Chapter meeting, April 26, 2001.
- Chapnick, S.D., N.C. Rothman, P.J. Kane, L.C. Pitts, C.A. Menzie. 2000. Freeze-Drying of Sediments to Achieve Risk-based Detection Levels for Polyaromatic Hydrocarbons (PAHs) and Metals. Poster presentation at the 17th Annual International Conference on Contaminated Soils, Sediments and Water, October 16-19, 2000, University of Massachusetts at Amherst, MA, October 2000.
- Kane, P., S.D. Chapnick, N.C. Rothman, and C.A. Menzie. 2000. Freeze-Drying Of Sediments to Achieve Risk-Based Detection Levels For PCB Congeners, Polynuclear Aromatic Hydrocarbons (PAHs), and Metals. Poster presentation at the 16th Annual Waste Testing and Quality Assurance (WTQA) Symposium , August 8, 2000.
- Chapnick, S.D. and N.C. Rothman. 2000. Quality of Environmental Measurements. Eight hour technical continuing education course for the Massachusetts Licensed Site Professional Association (LSPA). April 21, 1999.
- Chapnick, S.D. and N.C. Rothman. 1998-2004. Fundamentals of Sampling, Analysis, and Data Usability. Ongoing two-day training program for 450 employees of the Massachusetts Department of Environmental Protection (MADEP) in environmental quality and data usability.
- Kane, P., S.D. Chapnick, N.C. Rothman, and C.A. Menzie. 1999. Freeze-Drying Sediments To Achieve Risk-Based Detection-Levels For Semivolatile Organic Compounds and Metals. Poster presentation at Society of Environmental Toxicology & Chemistry (SETAC) North American 20th Annual Meeting, November 1999.
- Chapnick, S.D., M. Sharma, D. Roskos, N. Shifrin. 1998. An alternative to the inappropriate use of the Toxicity Characteristic Leaching Procedure. *American Environmental Laboratory*. 12/98, Vol. 10, No. 7:18-19.
- Chapnick, S.D., and N.C. Rothman. 1997. Check the Data Before Making a Brownfield Decision. *Brownfield News*, September, Vol. 1, Issue 4: 11-13.
- Shifrin, N.S., B.D. Beck, T.D. Gauthier, S.D. Chapnick, and G. Goodman. 1996. Chemistry, Toxicology, and Human Health Risk of Cyanide Compounds in Soils at Former Manufactured Gas Plant Sites. *Reg. Toxicology & Pharmacology*. 23:106-116.
- Slayton, T.M., B.D. Beck, K.A. Reynolds, S.D. Chapnick, P.A. Valberg, L.J. Yost, R.A. Schoof, L. Jones, 1996. Issues in Arsenic Cancer Risk Assessment. *Environ. Health Perspectives*. Volume 104, No. 10: 2-4.
- Chapnick, S.D., M. Sharma, and A.D. Wait. 1996. Managing the Client: The Misuse of TCLP Methods. *Environmental Lab*, February, 22-25.
- Chapnick, S.D., M. Sharma, D. Roskos, and N.S. Shifrin. 1995. The Misuse of the Toxicity Characteristic Leaching Procedure (TCLP). Presented at the 11th Annual Waste Testing & Quality Assurance Symposium, Washington, D.C.
- Chapnick, S.D. 1994. Data Quality Management. Instructor for course in Subsurface Investigation and Remediation for Sites Contaminated with Hazardous Wastes. University of Wisconsin-Madison, College of Engineering.
- Chapnick, S.D. 1994 and 1993. Chemistry for Non-Chemists. Instructor for: "Understanding Hazardous Waste Chemistry," "Understanding the Chemistry behind MSDSs," "The Basics of Analytical Chemistry," and "Managing Data Quality." Government Institutes, Inc. Presented in Orlando, FL., January 1994 and Washington, D.C., November 1993.
- Chapnick, S.D. and Kim A. Reynolds. 1993. Issues in Interpretation of Metals Data. Presented at the 86th Annual Air & Waste Management Association Meeting, Denver, CO. Paper No. 93-WA-73.08.
- Chapnick, S.D. and N.C. Rothman. 1993. The Power of Cross-Training. *Environmental Lab*. December/January 1992/93. Vol. 4, No. 6:20-24.

Loring, D.A. and S.D. Chapnick. 1993. Cost Effective Project Planning: An Alternative Approach to RCRA Facility Investigations. Proceedings of the 9th Annual Waste Testing and Quality Assurance Symposium, EPA, Arlington, VA.

Chapnick, S.D. 1992. Data Assessment/Data Usability. Presented as invited speaker for NYS DEC Quality Assurance Seminar, Albany, NY.

Chapnick, S.D. 1992. The Role of the Chemist in Data Usability Assessments. Presented at the American Chemical Society Northeast Regional Meeting, Syracuse, NY.

Chapnick, S.D. 1992. Data Assessment/Data Usability. Presented at the Conference on Quality Assurance in Environmental Monitoring, New York Water Pollution Control Association hosted at IBM, NY.

Wait, A.D., N.S. Shifrin, and S.D. Chapnick. 1992. Ensuring Environmental Data Quality. Presented at the 85th Annual Air & Waste Management Association Meeting, Kansas City, MO. Paper No. 92-122.5.0

Boyle, E.A., S.D. Chapnick, G.T. Shen, and M. Bacon. 1986. Temporal variability of lead in the Western North Atlantic Ocean. *J. Geophys. Res.* 91: 8573-8593.

Boyle, E.A., S.D. Chapnick, X.X. Bai, and A. Spivack. 1985. Trace metal enrichments in the Mediterranean Sea. *Earth and Planetary Sci. Ltrs.* 74: 405-419.

Chapnick, S.D., E.A. Boyle, and G.T. Shen. 1985. A model for lead penetration of the North American thermocline. Presented at *Amer. Geophys. Union Meeting*, Fall. Abstract in EOS 66:938.

Chapnick, S.D., E.A. Boyle, G.T. Shen, and M. Bacon. 1984. Variability of lead in the Sargasso Sea: June 1983-Sept. 1984. Presented at *Amer. Geophys. Union Meeting*, Fall. Abstract in EOS 65:968.

Bai, X.X., E.A. Boyle, and S.D. Chapnick. 1983. Alboran Sea trace metal plume. Presented at *Amer. Geophys. Union Meeting*, Fall. Abstract in EOS 64:735.

Chapnick, S.D., and E.A. Boyle. 1983. 1979 and 1983 lead profiles off Bermuda compared. Presented at *Amer. Geophys. Union Meeting*, Fall. Abstract in EOS 64:734.

Ghiorse, W.C., and S.D. Chapnick. 1983. Metal-depositing bacteria and the distribution of manganese and iron in swamp waters. *Ecol. Bull.* 35: 367-376.

Chapnick, S.D., W.S. Moore, and K.H. Neelson. 1982. Microbially mediated manganese oxidation in a fresh-water lake. *Limnol. Oceanogr.* 27: 1004-1014.

CONTINUING EDUCATION

Vapor Intrusion Training. MassDEP 2-hr Workshop, Northeast Regional Office, November 2007.

Critical Exposure Pathways. MassDEP 3-hr Workshop, University of Massachusetts, Amherst, MA, October 2007.

MCP Method 2 Risk Characterizations. 3-hr Workshop, University of Massachusetts, Amherst, MA, October 2005.

Applied Statistics for Environmental Professionals. 8-hr course, Society of Environmental Toxicology and Chemistry, 2002.

Just-in-Time Production. Management Institute, School of Business, Univ. of Wisconsin, 1990.