

**EXPERIENCE (continued)**

- Developed a QA/QC plan for an independent contract laboratory. Audited QA/QC programs for private labs. Performed QA/QC audits on six contract laboratories and field labs in the REM III Super-fund contract.

This involved several lab visits per year with inspection of QA documentation and Standard Operating procedures along with observation of all activities from receipt of samples of chain-of-custody to printing of data reports. Audited a private laboratory of discrepancies in QA/QC program.

- Compared TCLP to EP toxicity methods for extraction of metals from tailings at the Palmerton Zinc site.
- Conceptual design of treatment operations including stripping and activated-carbon treatment for aqueous organics and on-site chemical reaction for soil-bound PCBs. Developed and implemented laboratory and pilot plant protocols for testing of aquatic ozonation systems. Conducted treatability studies in many areas of water treatment.
- Directed laboratory research projects following TSCA protocols on environmental fate and transport of four chemicals. Modeled environmental performance and estimated properties of over 50 chemicals.
- Conducted laboratory testing and advised a client on technical and regulatory basis of FIFRA registration of a disinfectant.
- Evaluated a series of new techniques developed by a pesticide manufacturer to quantify low level analytical sensitivities. Performed data validation of applications of the method to herbicides in groundwater.

Developed and implemented chemometric methods for source-apportionment of complex mixtures including PCBs, dioxins, petroleum, and PAHs.

Environmental **Education**

- Developed and taught an environmental chemistry curriculum at Vassar College. Course work at both

### **EXPERIENCE (continued)**

undergraduate and graduate level and included both lecture and laboratory courses.

- Developed and taught a course on exposure assessments and risk characterization to EPA Regional Superfund personnel, U.S. Air Force, and California Department of Health Services.
- Lectured to numerous groups on risk assessment and hazardous waste management, including the University of California, Rutgers University, Pace University Law School, and George Mason University.

### **PROFESSIONAL SOCIETIES**

American Chemical Society  
Society for Environmental Toxicology and Chemistry'  
Society for Risk Analysis  
Hazardous Material Control Research Institute  
American Society for Testing and Materials  
Association for the Environmental Health of Soils

### **PROFESSIONAL ACTIVITIES**

Peer reviewer for several journals including Environmental Science and Technology, Water Research, and Journal of the American Water Works Association.

Participant on the **AWWARF/KIWA** Committee for the joint publication of "Non-Specific Analysis in Water Treatment."

American Chemical Society contact for "Science Behind the News" on subjects of **PCBs**, dioxin, incineration, and exposure assessment.

Session Chairperson - Permitting and Risk Assessment - 1989 Conference on Hazardous Wastes and Hazardous Materials.

EPA/Clean Sites Workshop on Standard Exposure Assumptions and Superfund Cleanup Standards.

EPA Workshop on Technical Issues in CERCLA Municipal Settlements, December, 1991.

GRI Workshop on Mercury Contamination at natural Gas Industry Sites, January 1992.

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Chrostowski, P.C. 1994. Exposure assessment principles. In Patrick, D.E. (ed.). Handbook of Toxic Air Pollution. New York: Van Nostrand Reinhold Co., Inc. Pp. 133-163

Chrostowski. P.C. 1993. Air toxics: Lead, mercury & other hazardous air pollutants. Lecture presented at the Environmental Issues in Utility Sitings. April 29, 1993. The Public Utilities Law Committee of the Florida Bar. Pp. 5.1 - 5.5.

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Chrostowski. P.C. and Sager, S.L. 1991. Management of Ash from Municipal Solid Waste Combustion. In Travis and Hattemer-Frey, (eds.) Health Effects of Municipal Waste Incineration Boca Raton, Florida: CRC Press. Chapter 13

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Foster, S.A., Chrostowski, P.C. and Dolan, D. 1991. The Use of Log-Normal Kriging to Calculate Exposure Point Concentrations. Paper presented at Measuring, Understanding and Prediction Exposures in the 21st Century, November 18-21, Atlanta, Georgia.

Chrostowski, P.C. 1991. Risk Assessment Methodologies for Municipal Solid Waste Management. Paper presented at ASH IV, Arlington, Virginia.

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**PUBLICATIONS AND PRESENTATIONS (continued)**

12th Annual Meeting of the Society of Environmental Toxicology & Chemistry, November 3-7, Seattle, Washington.

Chrostowski, P.C., Durda J. and Edelmann, K.C. 1991. The use of natural processes for the control of chromium migration. *Remediation* 1:341-351.

Draper, D., Chrostowski, P.C., and Greenberg, A. 1991. Polycyclic aromatic hydrocarbon source apportionment study for an urban

development site. Paper No. 91-82.7 presented at the AWMA Annual Meeting.

Chrostowski, P.C., Foster S.A. and Anderson E.L. 1991. Human health risks associated with asbestos abatement. *Risk Analysis* 11:465-481.

Chrostowski, P.C. and Pearsall, L.J. 1990. Risk assessment for remedial action selection at Superfund sites. Air and Waste Management Assoc., Pittsburgh, Pennsylvania.

Chrostowski, P.C. 1990. Measurement techniques for evaluating environmental asbestos, and risks associated with asbestos abatement activities. Paper presented at the Society for Risk Analysis Forum on Risk of Indoor Asbestos Building Materials, May 7-8, Arlington, Virginia.

Anderson, E., Chrostowski, P.C. and Vreeland, J. 1990. Risk Assessment Issues Associated with Cleaning Up Inactive Hazardous Waste Sites. In **Kunreuther, H.** and Gouda, M.U.R., (eds.) Integrating Insurance and Risk Management for Hazardous Wastes. Boston: Kluner Academic Publishers.

Foster, S.A. and Chrostowski, P.C. 1990. Estimating risks for hazardous waste incinerator emissions. Paper presented at the Incineration Conference, San Diego, California.

Chrostowski, P.C. and Shipp, A. 1990. State of the art for PCB site risk assessments. Paper presented at the PCB Forum at Houston, Texas. Pp. 47-61.

Chrostowski, P.C. and Foster S.A. 1989. Recent advances in asbestos assessment at Super-fund sites. Paper presented at the 10th Annual Hazardous Materials Control Research Institute Superfund 1989 Conference, November 28, Washington D.C.

Chrostowski, P.C. and Pearsall, L.J. 1989. Alternatives to the remedial investigation/feasibility study process. Paper presented at the 10th

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Annual Hazardous Materials Control Research Institute Superfund  
1989 Conference, Washington D.C.

Anderson, E.L., Chrostowski, P.C., and Foster S.A. 1988. Calculating  
the risks. *Solid Waste and Power*. June 1988

Chrostowski, P.C. and Sager S.L. 1988. Field and theoretical study of  
the subsurface mobility of chromium waste. Paper presented at the  
SETAC Annual Meeting.

Chrostowski, P.C., Foster, S.A., and Fogg, A. 1989. Assessing the risks  
of incinerating of dioxin contaminated soil. *Haz. Mat. Control J.* 2: 17-  
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Anderson, E.L., Chrostowski, P.C., and Vreeland, J.L. 1988. Risk  
assessment for use in groundwater management. Paper presented at  
the CSCE-ASCE National Conference on Environmental Engineering.  
Pp. 121- 129.

Foster, S.A. and Chrostowski, P.C. 1987. Inhalation exposures to  
volatile organic contaminants in the shower. Paper presented at the  
80th Annual Air Pollution Control Association Meeting, June, New  
York, New York. Paper #87-42.6.

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polynuclear aromatic hydrocarbons at hazardous waste sites. Paper  
presented at the HMCRI 7th Annual Superfund Conference,  
Washington, D.C.

Sager, S.L. and Chrostowski, P.C. 1987. **ACLs: The Link Between  
CERCLA and RCRA.** *Proc. National Conference on Hazardous Wastes  
and Hazardous Materials*, at Washington D.C.

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Chemical Mixtures at Hazardous Waste Sites. Paper presented at the  
SETAC Annual Meeting at Alexandria, Virginia.

Norton, S.B. and Chrostowski, P.C. 1986. A Conceptual model for the  
biouptake of xenobiotic chemicals by plants. Paper presented at the  
SETAC Annual Meeting, Alexandria, Virginia.

Foster, S.A. and Chrostowski, P.C. 1986. Integrated household  
exposure model for the use of tap water contaminated with volatile  
organic chemicals. Paper presented at the 79th Annual Air Pollution  
Control Association Meeting, Minneapolis, Minnesota. Paper #86.12.3.

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Chrostowski, P.C. and Pearsall, L.J.. and Shaw, C. 1985. Use of risk assessment in management decisions in inactive hazardous waste sites. *Environ. Manage.* 9:422-433.

Chrostowski, P.C. 1985. The environmental chemistry program at Vassar College. *J. Chem. Educ.* 60: 137-138.

Chrostowski, P.C. 1985. Risk assessment of groundwater contamination at hazardous waste sites. Paper presented at the SETAC 9th National Meeting, St Louis, Missouri, November.

Chrostowski, P.C., Ferris, J.S., Rue, W.J. and Fava, J.A. 1985. Modeling the fate and transport of biocides in estuarine power plant cooling water discharges. Paper presented at the Coastal Zone ASCE, Baltimore, Maryland.

Chrostowski, P.C. 1985. Applications of risk assessment to soil contamination at hazardous waste sites. Paper presented at a meeting of the New York State Public Health Association, Bear Mountain, New York.

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Chrostowski, P.C., Hinchee, R.E., Ferris J.S. and Goodfellow, W. 1984. Thermal effects on bioaccumulation: A thermodynamic approach. Paper presented at the Society for Environmental Toxicology and Chemistry National Meeting, Arlington, Virginia .

Chrostowski, P.C. and Suffet, I.H. 1984. Application of non-specific organic analyses to oxidation processes. Paper presented at the American Water Works Association Annual Conference, Dallas, Texas.

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Neukrug, H., et.al. 1983. Removing organics from Philadelphia drinking water by combined ozonation and adsorption. Prepared for the Office of Research and Development, U.S. Environmental Protection Agency. EPA 600/S2-83-048.

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Crawford, J.A., Hassett, J.P., Chrostowski, P.C. and Suffet I.H. 1981. Evaluation of fractionation techniques for aquatic humic materials. Paper presented at the American Chemical Society's 15th Middle Atlantic Regional Meeting Washington D.C.

Chrostowski, P.C. and Suffet, I.H. 1981. Ozonation of aquatic humics. Paper presented at the American Chemical Society National Meeting, New York, New York.

Chrostowski, P.C., Dietrich, A.M. and Suffet, I.H. 1981. Difference in physical-chemical properties of aquatic humics on treatment with ozone. Paper presented at the Symposium on Terrestrial and Aquatic Humic Materials at University of North Carolina, Chapel Hill. North Carolina

Dietrich, A.M., Chrostowski. P.C., Brunker, T.M. and Suffet, I.H. 1981. Physical-chemical mechanisms of aqueous ozonation. Paper presented at the American Society of Civil Engineers National Environmental Engineering Conference, Atlanta, Georgia.

Chrostowski, P.C., Dietrich, AM., Suffet, I.H. and Cairo, P.R. 1980. An experimental program for optimization of the application of ozone in drinking water treatment. Paper presented at the American Chemical Society's 14th Middle Atlantic Regional Meeting, King of Prussia, Pennsylvania.

Chrostowski, P.C., Dietrich, A.M. and Suffet, I.H. 1980. Bench scale testing of an ozone system prior to pilot plant operations. Paper presented at the American Water Works Association Conference, Atlanta, Georgia. Pp. 683ff.

### **EXPERT TESTIMONY**

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