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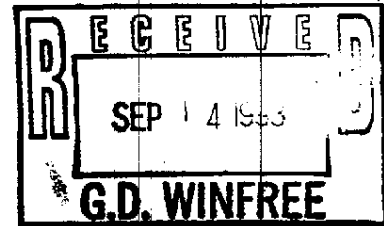
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September 10, 1993

Gregory D. Winfree, Esq.
Litigation Counsel
Union Carbide Corporation
Law Department, E3-285
39 Old Ridgebury Road
Danbury, CT 06817-0001

Re: Colby v. Union Carbide Corporation
Docket No. L-1979-91

Dear Greg:

Enclosed please find C.V.'s of the following potential toxicology experts for Union Carbide in this matter.

1. Dr. Rudolph J. Jaeger
2. Gary L. Lage, Ph.D., DABT
3. Laura C. Green, Ph.D., DABT

As we discussed, Dr. Jaeger is presently serving as the defense expert against Union Carbide in the matter entitled *Union Carbide Corporation v. Aetna Casualty and Surety Company, et al.* This matter is also venued in Middlesex County.

After you have the opportunity to review these C.V.'s, please contact us at the beginning of next week to discuss the selection of our toxicology expert.

PRIVILEGED AND
"CONFIDENTIAL MATERIAL
SUBJECT TO PROTECTIVE
ORDER"

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Kathryn M. Decker".

KATHRYN M. DECKER

KMD:ss
enclosures

cc: Robert L. Hollingshead, Esq. (w/o enc.)

UCC 075718

GARY L. LAGE, Ph.D., DABT

EDUCATION

- 1967 Ph.D., Pharmacology, University of Iowa
- 1965 M.S., Pharmacology, University of Iowa
- 1963 B.S., Pharmacy, Drake University

REGISTRATIONS

Diplomate, American Board of Toxicology

EXPERIENCE

Dr. Lage is a Principal at ENVIRON Corporation. He has over 25 years of experience in toxicology, both in its academic development as a scientific discipline and in consulting activities for industry and government. He has experience in developing innovative solutions to environmental problems through the use of risk assessments, and is widely recognized for communicating complex issues of toxicology and risk assessment to nonscientific audiences. His work at ENVIRON has included the following:

- Provided expertise in siting and permitting a commercial hazardous waste incinerator with development of a multiple pathway risk assessment and communication of results to regulatory agencies and public interest groups.
- Provided strategic guidance and expert evaluation in litigation involving chlorine and chlorine dioxide exposure to construction workers at a pulp and paper facility.
- Directed a TSCA 8(e) CAP audit for a major chemical manufacturer. In addition to developing a protocol for the audit, developed a data base to assist the auditors and to assure retrieval of the over 10,000 studies reviewed.
- Reviewed a risk assessment for development of real estate on the shores of Lake Michigan to assure that the risk assessment would be acceptable to the lending and regulatory agencies.
- Evaluated the potential risks associated with a CFC substitute in foam insulation to workers or to residents of homes insulated with the product.
- Assisted a client in strategic planning for evaluating indoor air concentrations of off-site residences as a result of ground water contamination with volatile chlorinated organic hydrocarbons, and assisted in the protocol development and analysis of indoor air and interpreted the results for the corporation and the residents.

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GARY L. LAGE, Ph.D., DABT

- Evaluated the potential risk to workers due to formaldehyde contamination of an agricultural product.
- Assisted a client in the strategic planning of protocol development and evaluation of potential indoor air contaminants at a former industrial facility due to ground water contamination with freon and chlorinated hydrocarbons, and presented the results to the current employees of the facility.
- Evaluated the potential adverse affects from dioxin contamination of naturally mined materials for both worker exposure and the exposure of consumers of products developed from these materials.
- Assisted a client in the strategic planning and site characterization for a Superfund site to assure that the sampling plan, analytical procedures, and detection limits would meet the needs of the risk assessment to be conducted for the site.
- Assisted four clients in developing protocol for TSCA 8(e) CAP audits.
- Assisted a client in negotiating a protocol for a risk assessment at a Superfund site to be performed by the EPA contractor to reduce the level of antagonism that might develop after the risk assessment was developed.
- Performed an updated risk assessment and evaluation of a Superfund site to incorporate current toxicology information and documented biodegradation into the risk assessment process.
- Assisted a client in designing and performing a risk assessment for a hazardous waste incinerator.
- Evaluated the hazards and potential liabilities for an insurance company due to a inappropriately applied pesticide in a apartment complex.
- Served as an international expert to review hazard assessments developed for 65 chemicals for the Ontario Ministry of the Environment.
- Assisted a client in evaluating potential off-site risks due to an industrial facility using 1,3-butadiene and incorporated current toxicological information on the mechanisms of toxicity of 1,3-butadiene.
- In a product liability case, evaluated the claim that a family was poisoned due to mercury contamination of a commercial juice product.
- Served as an expert toxicologist in litigation concerning trichloroethylene exposure due to contaminated ground water.

GARY L. LAGE, Ph.D., DABT

- Assisted in determining the necessity for a product recall due to a manufacturing error that caused significant quantities of alkaline material to be found in a consumer juice product. The product was recalled prior to any documented human exposure.
- Evaluated the potential risks due to chlorinated hydrocarbon contamination of ground water subsequently used in a consumer product.
- In a malpractice case, evaluated the potential adverse health affects from an alleged prescription error to the recipient.
- Assisted in performing multipathway risk assessments associated with post-remediation levels of PCBs in gas transmission locations.

Prior to joining ENVIRON, Dr. Lage was Vice President and Human Health Practice Leader at Roy F. Weston, Inc., where he was responsible for toxicological, risk assessment, and industrial hygiene issues. Prior to that, he served as Chairman of the Department of Pharmacology and Toxicology, and Professor of Toxicology at the Philadelphia College of Pharmacy and Science. He has also held teaching and research positions at the University of Kansas and the University of Wisconsin.

Dr. Lage's experience in these areas is represented in the following project descriptions:

- Served as project director and senior scientist for a hazardous waste incinerator project for a major chemical company that included a multipathway risk assessment, a traffic study, and a socioeconomic analysis.
- Performed several risk analyses to support a "no-action" alternative for ground water contaminants at contaminated industrial facilities.
- Served as an expert in support of a "no action" alternative for a site with complex cyanide contamination in soil. Involved differentiation of toxicity of simple cyanide compounds compared to complex cyanides.
- Served as senior scientist for an evaluation of the risk to pulp and paper facilities due to air emissions of chloroform. Developed scientifically sound alternative cancer potency values for chloroform, and presented assessments to numerous state and federal regulatory agencies.
- Directed a series of projects involving the determination of risk associated with PCBs in the gas transmission and distribution industries.

GARY L. LAGE, Ph.D., DABT

- Assisted a major metal processing facility in determining areas of maximum impact that would result from accidental chemical releases from the facility to surrounding residential areas. Determined which residential areas would be expected to experience illness or death due to worst-case chemical releases.
- Determined the potential adverse health impact to a sampling team at an NPL site due to unexpected exposure to dioxins, and communicated results to workers.
- Assisted a major company in developing risk-based environmental levels of lithium; helped negotiate with regulatory agencies concerning acceptable levels in ground water.
- Developed a computer model to predict off-site carcinogenic risks associated with on-site air emissions; screening model utilized SARA Title III emissions information to predict the carcinogenic risk.
- Evaluated a risk assessment performed on a cement kiln designed to burn fuel derived from hazardous waste. Assisted in presenting results to the regulatory agency and throughout the litigation process.
- Directed the permitting process for a water pulp and paper company seeking applicable air permits for a new facility.
- Performed an analysis and evaluation of occupational risks posed to workers in a PCB-contaminated facility, and presented results to owners and workers.
- Evaluated potential carcinogenic risk to workers from long-term use of contaminated ground water at a metals manufacturing facility, and presented results to employers.
- Served as an expert witness for determining the physiological effects of alcohol intoxication as related to motor vehicle operation for numerous dram shop and vehicular homicide cases.
- Assessed indoor air concentrations and determined potential health risks in residences surrounding a petroleum pipeline leak; monitored indoor air and determined action levels for compounds such as benzene.
- Developed air quality guidelines for 99 toxic chemicals for the city of Philadelphia, one of the first municipalities to develop such guidelines in the early 1980s.
- Developed an educational program entitled "Toxicology for Non-toxicologists," presented widely to attorneys, environmental managers, and other audiences over the last ten years.

GARY L. LAGE, Ph.D., DABT

- For the Pennsylvania Department of Health, participated in a preliminary investigation of potential hazards from chemical waste sites to evaluate the need for a more extensive health assessment.
- Developed a "Chemical Education Outline" to inform individuals and small businesses about chemical hazards in the workplace, with special emphasis on the OSHA Hazardous Communication Rule.

PROFESSIONAL MEMBERSHIPS AND ADVISORY POSITIONS

Member, Society of Toxicology; treasurer, 1985-1989.

Member, American Society of Pharmacology & Experimental Therapeutics.

Founder and First President, Mid-Atlantic Chapter, Society of Toxicology.

Member, American Pharmaceutical Association.

Member, American Association of Colleges of Pharmacy.

Member, International Society for the Study of Xenobiotics.

Member, American College of Toxicology.

Member, American Association for the Advancement of Science.

Member, Genetic Toxicology Association.

Member, Drug Metabolism Group.

Member, Section of Toxicology of the International Union of Pharmacology (IUPHAR).

Adjunct Professor of Toxicology, Drexel University, 1985-.

Professor, Weston Institute, 1989-.

Member, National Institute of Health, Environmental Health Sciences Review Committee, 1986-1990.

External Advisor, NIEHS Aquatic Biomedical Research Center, Medical College of Wisconsin, 1985-.

Member, Advisory Panel on Health, Safety, and Environmental Affairs, Smith Kline & French, 1984-.

GARY L. LAGE, Ph.D., DABT

Member, Advisory Committee on Toxic Air Pollutants for Philadelphia Department of Health, 1981-.

Member, Toxics/Health Effects Advisory Committee, Pennsylvania Department of Health, 1984-1988.

Member, Health Hazard Evaluation Panel, Weston, Inc., 1984-1987.

Member, Air Pollution Control Board, City of Philadelphia, 1983-1987.

Member, Board of Directors, Toxicology Laboratory Accreditation Board, Inc., 1983-1988.

Outside Reviewer, U.S. Navy Toxicology Program, 1983.

Member, Pennsylvania Vietnam Herbicide Information Committee, 1982-1987.

PUBLICATIONS AND PRESENTATIONS

Lage, G.L. 1992. Drug toxicity. *The Merck Manual*. 16th ed.

Lage, G.L. 1992. General principles of toxicology; Review of toxicological responses; and, Role of toxicology in risk assessment. Papers presented at the Government Institutes Symposium on Toxicology for Non-Toxicologists, Hilton Head, S.C., July; also presented in Washington, D.C., April 1992; Richland, Wa., November 1991; Washington, D.C., October 1991; April 1991; October 1990; and April 1990.

Lage, G.L. 1992. Methods to conduct risk assessments. Paper presented at the 12th Annual ILTA Operating Conference, Houston, Texas, June.

Lage, G.L. 1992. Environmental risk assessments: Techniques and applications. Paper presented at the Governmental Institutes Symposium on Environmental Risk Assessments, Arlington, Virginia, April.

Lage, G.L. 1992. General principles of toxicology; Review of toxicological responses; and, Role of toxicology in risk assessment. Papers presented at the Governmental Institutes Symposium on Toxicology for Non-Toxicologists for U.S. Army Chemical Research, Development & Engineering Center, Aberdeen Proving Ground, Maryland, January.

Lage, G.L. 1991. The TSCA Compliance Audit Program: How to determine which studies to report under TSCA Section 8(e). Paper presented at the Government Institutes Symposium on the TSCA Compliance Audit Program, Arlington, Virginia, October.

Lage, G.L. 1991. TSCA 8(e) CAP audits. Paper presented at the 1991 Toxicology Roundtable Symposium, Long Branch, New Jersey, October.

GARY L. LAGE, Ph.D., DABT

- Lage, G.L. 1991. Risk assessment and its uses in environmental regulation. Paper presented at the Center for Energy and Environmental Management's Symposium on Risk Assessment, Alexandria, Virginia, October and May.
- Lage, G.L. 1991. Risk assessment and how to cope with SARA Title III. Paper presented at the Pennsylvania Chamber of Business and Industry, Harrisburg, Pennsylvania, May.
- Lage, G.L. 1990. Introduction to risk assessment -- dispersion modeling/risk assessment. Paper presented at Clean Air Engineering, Chicago, December.
- Lage, G.L. 1990. Causation: Chemically induced disease -- the role of toxicology. *The Legal Intelligencer*, Philadelphia, November 15.
- Lage, G.L. 1990. PCB management training. Paper presented to the City of Austin Power and Light, Austin, Tex., October.
- Lage, G.L. 1990. The role of risk assessment in evaluating human health impacts of site clean-up alternatives. Paper presented at the Institute for International Research Symposium on Environmental Regulations at Federal Facilities, Washington, D.C., September.
- Lage, G.L. 1990. Review of chloroform toxicology. Paper presented to the Environmental Committee of the Alabama Pulp and Paper Industry, Montgomery, Ala., September.
- Mandelbaum, I., and G.L. Lage. 1989. Cookbook risk assessment: Coping with missing ingredients. Paper presented at Hazardous Waste Management Conference/Central.
- Kershaw, W.C., D.A. Barsotti, T.B. Leonard, J. Dent, and G.L. Lage. 1989. Methoxyflurane enhances allyl alcohol hepatotoxicity: Possible involvement of increased acrolein formation. *Drug Metab. Dispos.* 17:117.
- Lage, G.L. 1989. Toxicity assessment; and Characterization of risk. Papers presented at the Government Institute Symposium of Environmental Risk Assessment, Washington, D.C., November.
- Lage, G.L. 1989. Basic principles of toxicology. Paper presented at the Environmental Engineering Conference, University of Minnesota, Minneapolis, October; and at the Champion International Environmental Forum, Lake Logan, N.C., September.
- Lage, G.L. 1989. Risk assessment methodology: Toxicological applications and limitations. Paper presented at the Symposium on Risk Assessment of Solid Wastes at the American Institute of Chemical Engineers, Philadelphia, Pa., August.
- Lage, G.L. 1989. Impact of air toxics regulation on industry. Paper presented at Hazmat-International, Atlantic City, N.J., June.

GARY L. LAGE, Ph.D., DABT

- Lage, G.L. 1989. How environmental professionals use toxicological data. Paper presented at Hazmat-International, Atlantic City, N.J., June.
- Cannon, J.R., P.J. Harvison, and G.L. Lage. 1988. Age related differences in the metabolism of allyl alcohol to acrolein by Sprague-Dawley rats. Abstracted in *Toxicologist* 8:267.
- Lage, G.L. 1988. Drug testing: Causation implications. Paper presented to the Defense Research Institute Symposium on Workers Compensation, New York, December.
- Lage, G.L. 1988. Models of immune system testing. Paper presented to Annual Education Seminar of the Dermal Clinical Evaluation Society, Atlantic City, N.J., September.
- Lage, G.L. 1988. Risk assessment and facility siting. Paper presented at the Government Institute Symposium on Incineration and Thermal Destruction of Hazardous Wastes, Philadelphia, Pa., July.
- Lage, G.L. 1987. Drug toxicity. *The Merck Manual*. 15th ed.
- Abdelhamid, S., V. Valez, D. Smallwood, and G. Lage. 1987. Toxicological risk assessment at hazardous waste sites: An engineer's perspective. Third Annual Hazardous Materials Management Conference West.
- Lage, G.L. 1987. The role of toxicology in drug development. Presented to the Philadelphia Forum of the American Association of Pharmaceutical Scientists, Fort Washington, Pa., December.
- Lage, G.L., J. Esch, and J.E. Cromwell. 1987. Risk assessment. Paper presented at Third Annual Hazardous Materials Management Conference Symposium on Right to Know: Minimization of Work-Site and Off-Site Health Risks, Long Beach, Calif., December.
- Lage, G.L. 1987. Pharmacology of drugs of abuse; and Technology of drug testing. Papers presented at the Pennsylvania Bar Institute Symposium of Drug Testing in the Workplace, Philadelphia, Pa. and Princeton, N.J., October.
- Lage, G.L. 1987. Air pollutants/air toxics and their interaction with RCRA. Paper presented to the Environmental Forum, Sherman Oaks and Santa Clara, Calif., August.
- Lage, G.L. 1987. Role of toxicology in understanding chemically induced occupational diseases. Paper presented at the Defense Research Institute Academy of Workers Compensation, Boston, June.
- Lage, G.L. 1987. Drug testing: The scientific issues. Paper presented at the Federal Publications Symposium on Drugs and Chemicals in the Workplace, Philadelphia and Pittsburgh, May.

GARY L. LAGE, Ph.D., DABT

- Lage, G.L. 1986. Environmental toxicology. Paper presented at the Department of Pharmacology, The Medical College of Pennsylvania, Philadelphia, December.
- Lage, G.L. 1986. Drug and alcohol testing in the workplace. Paper presented at the Delaware State Chamber of Commerce Symposium on Drugs, Alcohol, and AIDS in the Workplace, Wilmington, Del., November.
- Lage, G.L. 1986. Public health problems associated with solid waste resource recovery and recycling. Sponsored by the League of Women Voters of Berks County, April.
- Fancher, R.M., W.C. Kershaw, and G.L. Lage. 1985. Allyl alcohol toxicity in Sprague-Dawley rats: Male vs. female. Paper presented at the Undergraduate Research Symposium, University of West Virginia, September.
- Kershaw, W.C., P. Campbell, and G.L. Lage. 1985. *In vitro* digitoxin metabolism: Rate-limiting step and alteration following spironolactone pretreatment. *Drug Metab. & Disp.* 13:635-639.
- Warwick, R.O., M.P. Smith, M.A. Gaffy, and G.L. Lage. 1985. Altered distribution and toxicity of digitoxigenin in fasted mice. *Life Sciences* 37:775.
- Lage, G.L. 1985. The air we breathe: Do we need a canary? Paper presented at the Department of Environmental Resources Symposium: Environmental Hazards and Your Health, Commonwealth of Pennsylvania, March.
- Lage, G.L. 1985. Mechanisms of chemical hepatotoxicity. Paper presented at the Department of Pharmacology & Toxicology, University of Texas, March. Also presented to the Department of Pharmacology, The Medical College of Pennsylvania, February.
- Lage, G.L. 1985. Mechanisms in altered digitalis toxicity. Paper presented to the Department of Pharmacology, Toxicology & Therapeutics, University of Kansas School of Medicine, March.
- Lage, G.L. 1984. Expansion and change in the science of toxicology. Paper presented at the OSHA Chemical Hazard Communication Standard Symposium, Manufacturers' Association of Delaware Valley, Valley Forge, Pa., October.
- Lage, G.L. 1984. The role of toxicology in determining risk assessment of toxic air pollutants. Paper presented at the American Institute of Chemical Engineers Symposium: Risk Management of Toxic Air Pollutants, Philadelphia, August.
- Lage, G.L. 1984. Modern toxicology. Paper presented at the Association of Official Analytical Chemists, Philadelphia, May.

GARY L. LAGE, Ph.D., DAET

- Lage, G.L. 1984. Health effects of dioxin. Paper presented at the Environmental Health Seminar, Harrisburg, Pa., January.
- Lage, G.L. 1984. Alcohol intoxication. Paper presented at the Toxicology for Attorneys Symposium, Houston and Chicago, July.
- Lage, G.L. 1983. The science of toxicology as it applies to dioxin. Paper presented at the Pennsylvania Medical Science Symposium: Toxic Herbicide Exposure, Pittsburgh and Valley Forge, Pa., October and November.
- Lage, G.L. 1983. Extrapolation from animal species to man. Paper presented at the Toxicology for Attorneys Symposium, Valley Forge, Pa., June and December.
- Lage, G.L. 1983. The evaluation of the medical aspects of health/risk assessment. ACS Symposium, White Haven, Pa., April.
- Lage, G.L. 1982. The role of dose-response relationships in toxicology. ASTM Symposium on Statistics in the Environmental Sciences, Philadelphia, December.
- Volp, R.F., and G.L. Lage. 1982. Digitoxin metabolism by rat, mouse and rabbit: NADPH requirement and spironolactone effect. *Research Comm. in Chem. Path. and Pharm.* 38:501-504.
- Lage, G.L. 1981. Toxicology and laboratory waste. ACS Symposium, King of Prussia, Pa., November.
- Lage, G.L. 1980. Dermatotoxicology. Thomas Jefferson University Conference on Toxicology, Philadelphia, March.
- Lehman, L., and G.L. Lage. 1980. The effect of chronic digitoxin treatment on subsequent digitoxin biliary excretion in the rat. Abstract presented at the West Virginia Symposium for Undergraduate Research, October.
- Sweeney, E.F., and G.L. Lage. 1979. Metabolism of digitoxin in the isolated perfused rat liver: Effect of spironolactone pretreatment. *Drug Metab. and Disp.* 7:280-284.
- Lage, G.L. 1979. Baccalaureate program in toxicology. *Veterinary and Human Toxicology* 21(3):191.
- Lage, G.L. 1979. Role of toxicology in the 1980s. Penjardel Environmental Improvement Committee, Philadelphia, December.
- Lage, G.L. 1979. Opportunities for universities to meet the needs of industrial research and development: The view from academe. Paper presented at the Industrial Research and Development Symposium, University of Mississippi, April.

GARY L. LAGE, Ph.D., DABT

- Volp, R.F., and G.L. Lage. 1978. The fate of a major biliary metabolite of digitoxin in the rat intestine. *Drug Metab. and Disp.* 6:418-424.
- Lage, G.L. 1978. Basic pharmacology. Short course for optometrists, Madison, Wisconsin, November and December.
- Lage, G.L. 1978. Safety extrapolations based on comparative pharmacokinetic parameters. Paper presented at the Drug Safety Subsection of the Pharmaceutical Manufacturers Association. Symposium entitled "Practical Pharmacokinetic Considerations in Toxicology," Point Clear, Ala., November.
- Lage, G.L. 1974-1978. Toxicology: The study of poisons. Paper presented at Beloit and Ripon Colleges and at the following branches of the University of Wisconsin: Eau Claire, Green Bay, Oshkosh, Platteville, Parkside, Stevens Point and Superior.
- Richards, L.G., and G.L. Lage. 1977. Stimulation of the glucuronidation of digitoxigenin-monodigitoxoside by liver homogenates from spironolactone-pretreated rats. *Toxicol. & Appl. Pharmacol.* 42:309-318.
- Richards, L.G., M.C. Castle, and G.L. Lage. 1977. Glucuronidation of digitoxin and its metabolites by rat and rabbit liver homogenates. *Drug Metab. & Dispos.* 5:469-473.
- Volp, R.F., and G.L. Lage. 1977. Studies on the intestinal absorption of bovine xanthine oxidase. *Proc. Soc. Exp. Biol. & Med.* 154:488-492.
- Lage, G.L. 1976. Liver tissue as a model to predict final metabolic products in man. Paper presented at the National Industrial Pharmaceutical Research Conference, Lake Delton, Wis.
- Lage, G.L. 1975. Bioavailability and drug disposition. Paper presented at the Northern Illinois Medical Service Representatives, Rockford, Ill.
- Lage, G.L. 1975. Hypertension and risk factors in heart disease. Visiting Lecturer Program at the Wisconsin Heart Association, Milwaukee, Wis.
- Lage, G.L. 1975. *Basic Clinical Pharmacology*. A Cassette Presentation for Extension Services in Pharmacy.
- Castle, M.C., and G.L. Lage. 1974. Cleavage by the β -glucuronidase of the water-soluble metabolites of digitoxin excreted in the bile of control and spironolactone pretreated rats. *Toxicol. and App. Pharmacology* 27:641-647.
- Lage, G.L. 1973. Mechanisms of drug interactions. Paper presented at the Wisconsin Pharmaceutical Association Meeting.

GARY L. LAGE, Ph.D., DABT

- Castle, M.C., and G.L. Lage. 1973. Biliary excretion and hepatic concentration of H^3 -digitoxin and its metabolites following spironolactone pretreatment of rats. *Res. Comm. Chem. Path. and Pharm.* 6:601-612.
- Castle, M.C., and G.L. Lage. 1973. Excretion of H^3 -digitoxin and its metabolites following spironolactone pretreatment in rats. *Drug Metab. and Disp.* 1:590-597.
- Castle, M.C., and G.L. Lage. 1973. Metabolism and distribution of digitoxin in the rat. *Arch. Intern. Pharmacodyn. Therap.* 203:323-335.
- Castle, M.C., and G.L. Lage. 1973. Enhanced biliary excretion of digitoxin following spironolactone pretreatment as it relates to the prevention of digitoxin toxicity. *Research Comm. in Chem. Path. and Pharmacol.* 5:99-108.
- Lage, G.L. 1972. The time lag in medical science. *Drug Abuse Resource Manual of Kansas*, vol. 1.
- Castle, M.C., and G.L. Lage. 1972. Effect of pretreatment with spironolactone, phenobarbital or B-diethylaminoethyl diphenylpropylacetate (SKF-525-A) on tritium levels in blood, heart, and liver of rats at various times after administration of H^3 -digitoxin. *Biochem. Pharmacol.* 21:1449-1455.
- Lage, G.L. 1971. Clinical implications of drug interaction information. *Amer. J. Pharm. Educ.* 35:770-775.
- Buck, S.H., and G.L. Lage. 1971. Possible mechanisms of the prevention of digitoxin toxicity by spironolactone in the mouse. *Arch. Intern. Pharmacodyn. Therap.* 189:192-197.
- Lage, G.L. 1969. Current spot removers: How safe are they? *J. of Kansas Pharmacy* 45:6.
- Lage, G.L. 1969. Over-the-counter products. Paper presented at Pharmacy Extension Program, Garden City, Wichita, and Colby, Kans. January and February.
- Lage, G.L. 1968. Prescription drug abuse. Paper presented at Pharmacy Extension Program, Kansas City, Colby, Garden City, Pittsburgh, and Wichita, Kans. January and February.
- Lage, G.L. 1968. Possible therapeutic applications of enzyme induction. *J. of Kansas Pharmacy* 44:6.
- Lage, G.L., and J.L. Spratt. 1968. Bilirubin conjugation by hepatic microsomes from adult male guinea pigs. *Arch. Biochem. and Biophys.* 236:175-180.
- Lage, G.L., and J.L. Spratt. 1968. Species variation and sex differences in the *in vitro* hepatic metabolism of H^3 -digitoxin. *J. Pharmacol. and Exper. Therap.* 159:182-193.

GARY L. LAGE, Ph.D., DABT

Spratt, J.L., and G.L. Lage. 1967. Fortran IV program for automatic external standardization in liquid scintillation spectrometry. *Intern. J. Applied Radiation and Isotopes* 18:247-252.

Lage, G.L., and J.L. Spratt. 1967. Effect of chlordane and DDT pretreatment on the metabolism of H^3 -digitoxin by monkey heart and liver tissues *in vitro*. *Arch. Intern. Pharmacodyn. Therap.* 169:255-261.

Lage, G.L., and J.L. Spratt. 1967. Antagonism of intravenous digitoxigenin lethality by reserpine pretreatment in the mouse. *Proc. Soc. Exp. Biol. and Med.* 125:580-583.

Lage, G.L., and J.L. Spratt. 1966. Structure-activity correlation of the lethality and central effects of selected cardiac glycosides. *J. Pharmacol. and Exper. Ther.* 152:501-508.

Lage, G.L., and J.L. Spratt. 1965. H^3 -digitoxin metabolism by adult male rat tissues *in vitro*. *J. Pharmacol. and Exper. Therap.* 149:248-256.

Lage, G.L. How to live with today's toxic chemicals. Paper presented over 100 times to high school and college science groups and to numerous service groups.

PN0400197.WS1

LAURA C. GREEN, Ph.D., D.A.B.T.

EDUCATION:

1981. Massachusetts Institute of Technology, Cambridge, Massachusetts. Ph.D. from the Department of Nutrition and Food Science (renamed Department of Applied Biological Sciences). Ph.D. thesis, "Nitrite and Nitrate: Toxicity, Metabolism, and Biosynthesis." Discovered that nitrate is biosynthesized in vivo in humans and in rats by a mammalian process. Investigated the toxicology and pharmacokinetics of nitrate and nitrite. Designed and built a novel automated system for the analysis of nitrate and nitrite in biological and environmental samples.

1975. B.A. with honors in Chemistry, Wellesley College, Wellesley, Massachusetts. Also studied Biology, Physics, Philosophy, and Literature. Honors included: Phi Beta Kappa, Sigma Xi, American Institute of Chemists Student Award, and Wellesley College Scholar.

BOARD CERTIFICATION:

Certification in general toxicology — Diplomate of the American Board of Toxicology (D.A.B.T.), 1988.

PROFESSIONAL EXPERIENCE:

1989-Present. Senior Scientist and President, Cambridge Environmental Inc., Cambridge, MA.

1986-Present. Lecturer, Division of Toxicology, Massachusetts Institute of Technology.

1985-1989. Vice President for Environmental Health and Toxicology, Meta Systems Inc., Cambridge, MA.

1983-1986. Research Affiliate and Project Coordinator for a five-year grant from the American Cancer Society for work in biochemical epidemiology, Department of Applied Biological Sciences, Massachusetts Institute of Technology.

1983-1985. Research Director of the Scientific Conflict Mapping Project, Harvard University School of Public Health. Developed a new method for making scientific and regulatory decisions about toxic and carcinogenic chemicals in the workplace and environment. Co-authored a book entitled, In Search of Safety: Chemicals and Cancer Risk (Harvard University Press, 1988).


Cambridge Environmental Inc

58 Charles Street Cambridge, Massachusetts 02141
617-225-0810 617-225-0813 FAX

UCC 075732

PROFESSIONAL EXPERIENCE (continued):

1978-1985. Consultant in toxicology and risk assessment, self-employed.

1981-1983. Postdoctoral Fellow in Environmental Toxicology, Massachusetts Institute of Technology. Research with Professor Gerald Wogan directed toward developing dosimeters for carcinogenic chemicals. Studied the covalent modification of hemoglobin and albumin by carcinogens. Determined that blood protein adduction was quantitative and sensitive, and therefore of use in assessing actual human exposures.

1975-1981. Research Assistant, Teaching Assistant, and Predoctoral Trainee, Department of Nutrition and Food Science (renamed Department of Applied Biological Sciences), Massachusetts Institute of Technology.

Summer, 1974. Research Chemist, Dow Chemical Company, Wayland, Massachusetts. Developed a direct oxidative synthesis method for propylene oxide.

SELECTED PROJECT EXPERIENCE:

Trichloroethylene and related chlorinated hydrocarbons

- Analyzed and critiqued literature on toxicity of trichloroethylene and related compounds. Developed expertise in trichloroethylene-induced carcinogenesis and in neurologic effects associated with trichloroethylene and its products of degradation. Served as consultant and/or expert witness in several "toxic tort" lawsuits in which exposures via contaminated drinking water were alleged to have caused significant harm. Also served as consultant and expert toxicologist in lawsuits surrounding workplace exposures to trichloroethylene, trichloroethane, and other volatile chlorinated hydrocarbons.

Polychlorinated dibenzodioxins

- Assessed risks associated with emissions of polychlorinated dibenzodioxins (PCDDs) from paper mill. Served as expert witness in lawsuit concerned with possible adverse effects on a lake, the surrounding environment, and the public health. Performed quantitative risk assessments for various exposures to PCDDs; focussed on excess risks of cancer and on risks of reproductive toxicity.


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SELECTED PROJECT EXPERIENCE (continued):

Benzene and related compounds

- Developed and applied expertise in benzene-induced leukemia. Performed qualitative and quantitative assessments of risk associated with various routes and levels of exposure. Served as consultant and expert toxicologist in lawsuits surrounding low-level environmental and occupational exposures to benzene. In other matters, evaluated risks of acute myelogenous leukemia from all known and suspected causes, including various chemicals, drugs, and radiation.
- Assessed hazards associated with exposures to benzene, toluene, and xylenes emanating from leaking underground storage tanks and above-ground spills of gasoline.

Mercury

- Performed an in-depth study on sources of mercury in municipal solid waste. Assessed toxicity to mercury given current environmental exposures and under extreme scenarios. Studied mechanisms of bioaccumulation of mercury in fish.

Municipal solid waste: environmental aspects of waste-to-energy and of landfills

- Performed or participated in several in-depth assessments of risk associated with management of municipal solid waste. Developed and applied expertise on risks associated with airborne emissions from waste-to-energy plants and from solid waste landfills. Applied technical knowledge to criticism of various proposed regulations concerning landfills, waste-to-energy plants, and mixed waste landfills designated as Superfund sites.

Food microbiology and food toxicology

- Served as expert toxicologist in matters involving salmonellosis from ingestion of poultry, alleged salmonellosis from ingestion of eggs, and related incidents.
- Served as consultant to National Academy of Sciences, Committee for a Study of Saccharin and Food Safety Policy. Developed relative risk assessment for the food additive uses of nitrite in cured meats; quantified and balanced risks of botulism (were nitrite absent from food product) against risks of cancer (from N-nitroso compounds from during cooking in the presence of nitrite).


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SELECTED PROJECT EXPERIENCE (continued):

Miscellaneous risk assessment and risk communication

- Participated in scores of public hearings on various matters of environmental health and safety. Presented testimony on general toxicologic matters, as well as on specific aspects of waste water discharges, pesticide applications, and workplace exposures to various chemicals. Attempted throughout to be precise and detailed, yet understandable to audiences with disparate backgrounds and biases.

OTHER PROFESSIONAL ACTIVITIES:

Invited peer reviewer, Epidemiology
Invited peer reviewer, Agency for Toxic Substances and Disease Registry
Invited member, Visiting Committee, Whitaker College of Health Sciences and Technology, M.I.T.
Invited lecturer in Toxicology, Harvard School of Public Health

PROFESSIONAL ORGANIZATIONS:

American Association for the Advancement of Science
American Chemical Society
Society of Toxicology

ORIGINAL REPORTS:

Lash, T.L. and Green, L.C. (1992). Blink reflex measurement of effects of trichloroethylene exposure on the trigeminal nerve. Letter to Editor. Muscle and Nerve. In Press.

Crouch, E.A.C., Green, L.C., Jaffe, D., Lash, T.L., Luis, S.J., and Pilkington, M.B.G. (1992). Interim report on an assessment of risks to health potentially associated with exposure to Oil 55 that may leak from a Myers submersible pump in a water well. Cambridge Environmental Inc.

Green, L.C., Waldman, R.H., and Golan, D.E. (1992). Comment on the interpretation of lymphocyte phenotyping. Cancer Immunol Immunother 35:218-220.


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ORIGINAL REPORTS (continued):

- Zemba, S.G., Pilkington, M.B.G., Crouch, E.A.C., Armstrong, S.R., Jaffe, D.J., Lash, T.L., and Green, L.C. (1992). A health risk assessment of the waste-to-energy plant proposed for Green Island, New York, Cambridge Environmental Inc.
- Zemba, S.G., and Green, L.C. (1992). Perspectives on mercury. Solid Waste and Power 6(3):38-44.
- DeVoto, E., Green, L.C., Hirschfield, D.J., Lash, T.L., and Zemba, S.G. (1991). A qualitative assessment of potential health effects associated with airborne emissions from the proposed waste-to-energy facility in Lisbon, Connecticut. Cambridge Environmental Inc.
- Crouch, E.A.C., DeVoto, E., Green, L.C., and Zemba, S.G. (1991). Phase II risk characterization for the USM site, Beverly, Massachusetts, Cambridge Environmental Inc.
- Armstrong, S.R., Crouch, E.A.C., DeVoto, E., Green, L.C., and Lash, T.L. (1990). Comments on the ATSDR's draft health assessment guidance manual, Cambridge Environmental Inc.
- Zemba, S.G., Crouch, E.A.C., DeVoto, E., Green, L.C., and Pilkington, M.B.G. (1990). Phase II risk characterization for Chelsea Tank Farm, Chelsea, Massachusetts, Cambridge Environmental Inc.
- Croy, R.G. and L.C. Green (1990). Analysis of health hazards from soils containing vanadium, Cambridge Environmental Inc.
- Crouch, E.A.C., DeVoto, E., Green, L.C., and Zemba, S.G. (1990). A health risk assessment of the proposed East Bridgewater integrated waste-disposal system, Cambridge Environmental Inc.
- Crouch, E.A.C., Green, L.C., and Zemba, S.G. (1990). Estimation of health risk from landfill gas emission. Proceedings of the GRCDA 13th Annual International Landfill Gas Symposium, Lincolnshire, IL, p. 87-94
- Crouch, E.A.C., DeVoto, E., Green, L.C., and Kaden, D.A. (1989). Comments on U.S. EPA's proposed national emission standards for hazardous air pollutants — benzene waste operations, Cambridge Environmental Inc.

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ORIGINAL REPORTS (continued):

Crouch, E.A.C., Kaden, D.A., Green, L.C., and Lash, T.L. (1989). Addenda to health risk assessment for the W.R. Grace & Co. Property, Cambridge, Massachusetts, Cambridge Environmental Inc.

Crouch, E.A.C., Green, L.C., and Kaden, D.A. (1989). Health risk assessment for proposed waste-to-energy facility, Orange County, Florida, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., Green, L.C., and Lash, T.L. (1989). Assessment of health risks due to perchloroethylene contamination of groundwater beneath Shaw's Supermarket property, West Street, Brockton, Massachusetts, Environmental Health and Toxicology Group, Meta Systems Inc.

Baer, S.N., Crouch, E.A.C., Green, L.C., and Lash, T.L. (1989). Health risk characterization, 211 Central Street, Norwood, Massachusetts, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. and Lash, T.L. (1989). Response to the NCTR technical report for experiment number 338: bioassay of Gentian Violet in flacher 344 rats, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. and Lash, T.L. (1989). Response to the NCTR technical report for experiment number 304: B6C3F1 mouse bioassay of Gentian Violet, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., Green, L.C., and Lash, T.L. (1989). Comments on feasibility studies as proposed in the national contingency plan, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., Green, L.C., and Lash, T.L. (1989). Comments on EPA's proposed revisions to the hazard ranking system, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C. and Green, L.C. (1989). A protocol for estimating ambient air concentrations from area sources for site risk assessment, Environmental Health and Toxicology Group, Meta Systems Inc.


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ORIGINAL REPORTS (continued):

Green, L.C. and Lash, T.L. (1989). Response to NCTR technical report nos. 305, 354, and 355: Three generation reproduction and toxicity studies of Gentian Violet in Fischer 344 rats, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., Baer, S.N., Kaden, D.A., and Green, L.C. (1988). Health risk characterization for parcel 3, Cambridge Center, Environmental Health and Toxicology Group, Meta Systems Inc.

Baer, S.N., Crouch, E.A.C., Green, L.C., and Lash, T.L. (1988). Municipal solid waste landfilling: A review of environmental effects, Environmental Health and Toxicology Group, Meta Systems Inc.

Pharmley, G., Crouch, E.A.C., Green, L.C., and Lash, T.L. (1988). Comments on the EPA's proposed drinking water regulations, maximum contaminant level goals and national primary drinking water regulations for lead and copper 53 FR 31516, Environmental Health and Toxicology Group, Meta Systems Inc.

Conner, M.W., Crouch, E.A.C., Green, L.C., and Lash, T.L. (1988). An assessment of the safety of grade A shell eggs, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C., Lash, T.L., Mainville, C., and Menzie, C. (1988). Preliminary assessment of the environmental quality surrounding the Saugus RESCO landfill, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. and Lash, T.L. (1988). Comments on the ATSDR toxicological profile for lead, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., and Green, L.C. (1988). Health risk assessment for the W.R. Grace & Company property, Cambridge, Massachusetts, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C., Kaden, D.A., Lash, T.L., Tannenbaum, S.R. et al. (1988). Comments on the ATSDR toxicological profile for trichloroethylene, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. and Lash, T.L. (1987). Response to two teratology studies: 1) teratologic evaluation of Gentian Violet in CD rats, 2) teratologic evaluation of Gentian Violet in New Zealand white rabbits, Environmental Health and Toxicology Group, Meta Systems Inc.

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ORIGINAL REPORTS (continued):

Green, L.C. and Lash, T.L. (1987). Response to two 90 day studies: 1) 90 day study of Gentian Violet in B6C3F1 mice, 2) 90 day study of Gentian Violet in fischer 344 rats, Environmental Health and Toxicology Group, Meta Systems Inc.

Baer, S.N., Crouch, E.A.C., and Green, L.C. (1987). A toxicologic analysis of apple-processing and related sludges applied to field corn croplands, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C., Menzie, C., and Green, L.C. (1987). A commentary on the U.S.E.P.A's superfund program: Interim guidance on compliance with applicable or relevant and appropriate requirements', Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C., Lash, T.L., and Crouch, E.A.C. (1987). Alternatives for municipal waste disposal, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. and Baer, S.N. (1987). Assessment of the safety of lead in incinerator ash, Environmental Health and Toxicology Group, Meta Systems Inc.

Crouch, E.A.C. and Green, L.C. (1987). A reevaluation of the public health risk assessment for the proposed Boston Resource Recovery Facility, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. (1986). A commentary on the 'draft carcinogen policy' issued by the Massachusetts Department of Public Health on August 28, 1986, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. (1986). Gentian Violet: A review of the scientific evidence, Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C., Baer, S.N., E.A.C., Crouch, Foster, S. (1986). A critique of the Massachusetts Department of Environmental Quality Engineering (DEQE) ambient air guideline for polychlorinated dibenzo dioxins and furans (PCDDs and PCDFs), Environmental Health and Toxicology Group, Meta Systems Inc.

Green, L.C. (1986). Allergic response to formaldehyde, Environmental Health and Toxicology Group, Meta Systems Inc.


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ORIGINAL REPORTS (continued):

- Graham, J.D., Wilcox, M.A., Green, L.C., Roberts, M.J. (1986). Formaldehyde and cancer risk: An evaluation of governmental risk assessments, Department of Health Policy and Management, Harvard School of Public Health.
- Green, L.C. (1986). Carcinogen-DNA adducts: Significance and detection in human tissues with particular emphasis on nitro-substituted pyrenes, Environmental Health Toxicology Group, Meta Systems Inc.
- Skipper, P.L., Green, L.C., Bryant, M.S., and Tannenbaum, S.R. (1984). Monitoring exposure to 4-aminobiphenyl via blood protein adducts. IARC Scientific Publications, 59:143-150.
- Green, L.C., Skipper, P.L., Turesky, R.J., and Tannenbaum, S.R. (1984). In vivo dosimetry of 4-aminobiphenyl via a cysteine adduct in hemoglobin. Cancer Research 44:4254-4259.
- Green, L.C. and Tannenbaum, S.R. (1982). Nitrate and nitrite in food. Nutrition and the M.D. VIII(5):1-6.
- Green, L.C., Tannenbaum, S.R., and Fox, J.G. (1982). Nitrate in human and canine milk. Letter to New England Journal of Medicine 306:1367-1368.
- Green, L.C. (1980). Metabolism of nitrate. In Proceedings of the Meat Industry Research Conference, American Meat Institute.
- Tannenbaum, S.R. and Green, L.C. (1981). Metabolism of nitrate. In Gastrointestinal Cancer: Endogenous Factors, Banbury Report No. 7, Cold Spring Harbor Laboratory, p. 331-341.
- Green, L.C., Ruiz de Luzuriaga, K., Wagner, D.A., Rand, W., Iaffan, N., Young, V.R. and Tannenbaum, S.R. (1981). Nitrate biosynthesis in man. Proceedings of the National Academy of Sciences, USA 87:7764-7768.
- Green, L.C., Tannenbaum, S.R., and Goldman, P. (1981). Nitrate synthesis in the germfree and conventional rat. Science 212:56-58.
- Mergens, W.J., Vane, F.M., Tannenbaum, S.R., Green, L.C., and Skipper, P.L. (1979). In vitro nitrosation of methapyrilene. Journal of Pharmacological Science 68:827-832.

Laura C. Green, Ph.D., D.A.B.T.
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ORIGINAL REPORTS (continued):

Baldwin, J.E., Scott, A., Branz, S.E., Tannenbaum, S.R. and Green, L.C. (1978). Chemical studies on carcinogenic nitrosamines. I. Hydrolysis of α -acetoxy nitrosamines. Journal of Organic Chemistry 43:2427-2431.

Hansen, T.J., Iwacka, W.T., Green, L.C., and Tannenbaum, S.R. (1977). Analysis of N-nitrosoproline in raw bacon: Further evidence that nitrosoproline is not a major precursor of nitrosopyrrolidine. Journal of Agriculture Food Chemistry 25:1423-1426.

Green, L., Hansen, T.J., Iwacka, W.T., and Tannenbaum, S.R. (1976). Specific detection systems for the chromatographic analysis of nitrosamines. Proceedings of the 2nd International Symposium on Nitrite in Meat Products, Zeist, Pudoc, Wageningen, eds., p. 145-153.

BOOKS AND BOOK CHAPTERS:

Graham, J.D., Green, L.C., and Roberts, M. (1988). In Search of Safety — Chemicals and Cancer Risk. Cambridge, Massachusetts, Harvard University Press.

Colditz, G.A., Stampfer, M.J., and Green, L.C. (1988). Dietary modifications of lung cancer risk. In Variations in Susceptibility to Inhaled Pollutants: Identification, Mechanisms, and Policy Implications, J. Brian, B. Beck, A.J. Warren, and R. Shalkh, eds., Baltimore: Johns Hopkins University Press.

Green, L.C., Rait, D., and Tannenbaum, S.R. (1982). Nitrate, nitrite, and N-nitroso Compounds: biochemistry, metabolism, toxicity and carcinogenicity. In Human Nutrition: Current Issues and Controversies, A. Neuberger and T.H. Jukes, eds. Lancaster, England: MTP Press Limited, p. 87-140.


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RUDOLPH J. JAEGER
President and Principal Scientist
Environmental Medicine, Inc.
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Westwood, New Jersey 07675

PROFESSIONAL HISTORY

Environmental Medicine, Inc. (1985 - Present)
New York University Medical Center, Institute of Environmental Medicine - Research Professor
(1983 - Present)
New York University Medical Center, Institute of Environmental Medicine - Associate Professor in
Environmental Medicine (1979 - 1983)
Harvard School of Public Health - Visiting Lecturer on Occupational & Environmental Toxicology
(1979 - Present)
Harvard School of Public Health - Associate Professor in Toxicology (1978 - 1979)
Harvard School of Public Health - Assistant Professor in Toxicology (1973 - 1978)
Harvard School of Public Health - Research Associate in Toxicology (1971 - 1973)

EDUCATION

Ph.D., Biochemical Toxicology - Johns Hopkins University, School of Hygiene and Public Health, 1971
B.S., Biology - Rensselaer Polytechnic Institute, 1966

AFFILIATIONS

Society of Toxicology
Society of Toxicology of Canada
American Academy of Clinical Toxicology
American Industrial Hygiene Association
American Conference of Governmental Industrial Hygienists
American Chemical Society
American College of Toxicology
American Association of Pathologists
American Association for the Advancement of Science
Sigma Xi (Harvard - Radcliffe Chapter)
Middle-Atlantic Section, Society of Toxicology
Toxicology Forum (Individual Member)
Inhalation Toxicology Specialty Section, Society of Toxicology
Society for Risk Analysis
American Society for Testing and Materials

APPOINTMENTS

Toxicology Information Program Committee, Board on Environmental Studies and Toxicology, National
Academy of Sciences - National Research Council

HONORS

Research Career Development Award, National Institute of Environmental Health Sciences, NIH, DHHS,
1978 - 1983
Leslie Silverman Award, New England Section, American Industrial Hygiene Association, 1980

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EDITORIAL SERVICE

Editorial Boards: Journal of Toxicology and Environmental Health (1985-1992)
 Journal of the American College of Toxicology
 Boston Bulletin on Chemicals and Disease (1985-1992)
 NYU Medical Center Health Letter (advisory)
 Environmental Contractor Magazine

LICENSURE AND CERTIFICATION

Certification: Diplomate, American Board of Toxicology

 Registered Environmental Assessor (REA) State of
 California

Board Eligible: Professional Standards Review, American Academy of
 Toxicological Sciences

 American Board of Industrial Hygiene Toxicologic Aspects
 of Industrial Hygiene

INVITED LECTURES AND PRESENTATIONS

American Lung Association, Boston, MA - Toxicology of Pesticides

Defense Research Institute, Boston, MA - Review of Immunology

Harvard School of Public Health, Boston, MA - Industrial Hygiene course; Emergency Planning for
Chemical Accidents; Epidemiology and Risk Assessment for Lawyers; Toxicology Review course for
Massachusetts Department of Public Health

Bell Communications Research, Piscataway, NJ - Worker Right-To-Know; Hazard Communication
Training

Clark University, Worcester, MA - Toxicology Seminar

University of Rhode Island, Kingston, RI - Inhalation Toxicology Methods

John B. Pierce Foundation of Yale University, New Haven, CT - Plastics Toxicology

Hunter College, Manhattan, NY - Toxicology Seminar

New York State Division of Laboratories, Albany, NY - Inhalation Toxicology

AT&T Bell Laboratories, Murray Hill, NJ and Lisle, IL - Toxicology Review

US Department of Justice, Assistant Attorneys-General - Training Meeting on Superfund and Toxic Tort
Litigation.

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CONSULTATIVE EXPERIENCE

Children's Hospital, Boston Blood Preservation Laboratory - Analytic Consultant

Boston Poison Control Information Center - Consultant and lecturer

General Tire and Rubber Company, Akron, OH - Analytic Consultant

Energy Resources Company, Cambridge, MA - Consulting Toxicologist

Office of Regional Solicitor, U.S. Department of Labor, Philadelphia, PA - Expert Witness - Toxicology of Kepone

Hundley, Taylor and Glass, Richmond, VA - Consultant to Plaintiff - Toxicology of Kepone

Polaroid Corporation, Cambridge, MA - Consulting Toxicologist

National Institutes of Occupational Safety and Health - Review Consultant, Criteria Document of Vinyl Monomers

National Academy of Engineering, NAS-NRC - Panel Member, Subcommittee on Flammability of Dielectrics

U.S. Department of Labor OSHA - Expert Witness, Styrene

U.S. Department of Labor OSHA - Expert Witness and Toxicology Consultant on Dimethyl Aminopropionitrile (NIAX ESN)

Boston Poison Control Center and United States Coast Guard - Consultant on Toxicology and Industrial Hygiene of Phosphine

Environmental Protection Agency, Cincinnati, OH - Criteria Reviewer and Committee Member, Water Quality Standards Division

General Electric Company, Schenectady, NY - Lecturer on Toxicology

Environmental Protection Agency, Washington, DC - Criteria Document Review - Vinylidene Chloride, Acrylonitrile, Trichloroethylene, Perchloroethylene

Clement Associates, Washington, DC - Quality Assurance Review Panel, Document Review

Occupational Health Services, Inc., Cambridge, MA - Consultant

Metropolitan Life Insurance Co., New York, NY - Consultant

Clement Associates, Washington, DC and CEQ - Review Consultant, Human Reproductive Toxicity, Council on Environmental Quality

World Health Organization International Program on Chemical Safety, Helsinki, Finland - Expert and Rapporteur, Criteria Document Task Group, Styrene Health Effects

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American Cyanamid Co., Wayne, NJ - Consultant

Goodwin, Procter and Hoar, Boston, MA - Consultant to Defendant and Expert Witness on Perchloroethylene

Life Systems, Inc., Cleveland, OH and Office of Toxic Substances, USEPA, Washington, DC - Consultant and Expert Witness, Structure Activity Relationships

Patterson, Bellknap, Webb and Tyler, New York, NY - Consultant

Hale and Dorr, Boston, MA - Consultant and Expert Witness

Mueller's Macaroni Co., Jersey City, NJ - Consultant

Attorney-General, State of New York - Consultant to Plaintiff, Expert Witness, Metals and Organics

Southern California Edison Co., Rosemead and Visalia, CA - Consultant and Expert Witness, Creosote, Pentachlorophenol and Dioxins

Karch and Associates, Washington, DC - Consultant

US EPA and US Department of Justice, Washington, DC and Niagara Falls, NY - Consultant to Plaintiff, Expert Witness, Superfund US v. Hooker Chemical Co.

Plymouth Rubber Co., Canton, MA - Consultant on Safety Evaluation Consumer Product

Environmental Research and Technology, Concord, MA - Consulting Toxicologist on Ground Water and Air Toxics Programs - Risk Assessment

Combustion Engineering, Windsor, CT - Consulting Toxicologist on Ground Water

Electric Power Research Institute, Palo Alto, CA - Document Reviewer on Health Effects of PCBs and Dioxins

Albert Orgain, IV Esq., Richmond, VA - Consultant

Esselte Letraset Manufacturing, Moonachie, NJ - Consulting Toxicologist on Consumer Labeling, Art Supplies and Inks

New York Telephone Co., New York, NY - Consulting Toxicologist

Environmental Research Technology and Connecticut Business and Industry Alliance, Hartford, CT - Consulting Toxicologist on Air Toxics Regulations

Gallafent & Co., London, England - Product Registration, PMN and Process Importation Toxicology

US EPA Environmental Criteria and Assessment Office, Cincinnati, OH - Review on Biochemical Toxicology and Effects Ranking

William Casagrande, Casa Market, Bergenfield, NJ - Food Safety Review on Smoked Meats

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Page 5

Penobscot Energy Resource Co., Orrington, ME - Review on Health Effects of Municipal Solid Waste Incineration

Wadleigh Law Firm, Manchester, NH - Health and Safety - Galvanized iron pipes for drinking water

Gardere and Wynne, Dallas, TX - Wood Preservation Chemicals and Soil Contamination

Goodwin, Procter and Hoar, Boston, MA - Document preparation for Science Advisory Board on Perchloroethylene

Remediation Technology, Inc., Pittsburgh, PA - Development of Health and Safety Plan for Waste Disposal Site

Womble, Carlyle, Sandridge and Rice, Winston-Salem, NC - Toxicology Consultant

Jones, Day, Reavis and Pogue, Washington, DC - Document Service

Esselte Letraset UK, London, England - Consultant on Product Labeling Process Importation

Ropes and Gray, Boston, MA - Toxicology Consultant

Union Carbide Corporation, Law Department, Danbury, CT - Toxicology Consultant

Goodwin, Procter and Hoar, Boston, MA - Toxicology Consultant

Lord and Taylor, New York, NY - Toxicology Consultant

IBM Corporation, Armonk, NY - Toxicology Consultant

Southern California Edison Co., Venice, CA - Air Pollution and Hazardous Waste Risk Assessment

Greenberg, Dauber and Epstein, Newark, NJ - Toxicology Consultant

Hackensack Water Co., Harrington Park, NJ - Document Review on NJ Water Quality

Shaheen, Cappiello, Stein and Gordon, Concord, NH - Toxicology Consultant

State of Michigan, Department of Natural Resources, Lansing, MI - Toxicology Consultant, Special Advisory Committee on Methyl Chloroform

Monsanto Agricultural Company, St. Louis, MO - Toxicology Consultant

Walton, Lantaff, Schroeder and Carson, Miami, FL - Toxicology Consultant

Akin, Gump, Strauss, Hauer and Feld, Washington, DC - Toxicology Consultant

Williams & Connolly, Washington, DC - Toxicology Consultant

AMAX Mineral Resources, Inc., Golden, CO - Toxicology Consultant

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Page 6

Griffith & Burr, Philadelphia, PA - Toxicology Consultant

Hyperion Catalysis International, Lexington, MA - Toxicology Consultant, Product Registration

Ryan, Ryan and Hickey, Stamford, CT - Toxicology Consultant

Fort Lee Board of Education, Fort Lee, NJ - Toxicology Consultant, Asbestos Hazard Evaluation

Palisades Park Board of Education, Palisades Park, NJ - Toxicology Consultant, Asbestos Hazard Evaluation

Ridgewood Board of Education, Ridgewood, NJ - Toxicology Consultant, Asbestos Hazard Evaluation

McGuire Woods Battle and Booth, Richmond, VA - Toxicology Consultant

Kehoe, Doyle, Playter and Novick, Boston, MA - Toxicology Consultant

Sidley and Austin, New York, NY - Toxicology Consultant

Griffin, Rainwater and Draper, Crossett, AR - Toxicology Consultant

Gubman Sitomer Goldstein and Edlitz, New York, NY - Toxicology Consultant

Schoeman, Marsh, Updike and Welt, New York, NY - Toxicology Consultant

Arter and Hadden, Cleveland, OH - Toxicology Consultant

Smith, Helms, Mulliss and Moore, Greensboro, NC - Toxicology Consultant

Holme Roberts and Owen, Denver, CO - Toxicology Consultant

Lockheed Aeronautical Systems Co., Burbank, CA - Toxicology Consultant

Electro Signal Lab, Parsippany, NJ - Toxicology Consultant

Diamond and Associates, Montpelier, VT - Toxicology Consultant

Scanlon, Howley, Scanlon and Doherty, Scranton, PA - Toxicology Consultant

Envirosphere Co., Lyndhurst, NJ - Toxicology Consultant

Polymerica Inc., Waltham, MA - Toxicology Consultant

Holland and Hart, Billings, MT - Toxicology Consultant

Environmental Project Control, Grafton, MA - Toxicology Consultant

Teitler & Teitler, New York, NY - Toxicology Consultant

Mintz, Levin, Cohn, Ferris, Glovsky & Popeo, Boston, MA - Toxicology Consultant

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Decart, Inc., Morrisville, VT - Toxicology Consultant
Lascaux Farbenfabrik, Bruttisellen, Switzerland - Toxicology Consultant
McCarthy, Gaynor & Gatlin, Framingham, MA - Toxicology Consultant
H. Schmincke & Co., Erkrath, Germany - Toxicology Consultant
Ice Miller Donadio & Ryan, Indianapolis, IN - Toxicology Consultant
Tommasino & Tommasino, Boston, MA - Toxicology Consultant
Graphic Arts Systems, Inc., Cleveland, OH - Toxicology Consultant
Craft House Corporation, Toledo, OH - Toxicology Consultant
Rupert, Gibbon & Spider, Healdsburg, CA - Toxicology Consultant
Gjevre, McLarnan, Hannsber, Vaa, Skarvold & McLarnan, Moorhead, MN - Toxicology Consultant
Testor Corporation, Rockford, IL - Toxicology Consultant
Gick Publishing Inc., Irvine, CA - Toxicology Consultant
Paint Specialties Laboratory, Portland, OR - Toxicology Consultant
Draper Laboratory, Cambridge, MA - Toxicology Consultant
Transflock, Inc., New York, NY - Toxicology Consultant
W.R. Grace Company, Cambridge, MA - Toxicology Consultant
Drinker Biddle & Reath, Philadelphia, PA - Toxicology Consultant
Alkon & Rhea, St. Croix, USVI - Toxicology Consultant
Appleton Paper Company, Appleton, WI - Toxicology Consultant
Law Offices of Thomas D. Dolan, Lynn, MA - Toxicology Consultant
Cal Western Paints, Santa Fe Springs, CA - Toxicology Consultant
Convenience Products, Fenton, MO - Toxicology Consultant
Neighborhood Cleaners Association, New York, NY - Toxicology Consultant
Alexander Art, Salem, OR - Toxicology Consultant
Curley & Curley, Boston, MA - Toxicology Consultant

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Norman, Hanson & DeTroy, Portland, ME - Toxicology Consultant
Fulbright & Jaworski, Houston, TX - Toxicology Consultant
Osborn, Hiner & Lisher, Indianapolis, IN - Toxicology Consultant
O'Melveny & Myers, Los Angeles, CA - Toxicology Consultant
Medea Co., Inc., Portland, OR - Toxicology Consultant
Sheft & Sheft, New York, NY - Toxicology Consultant
Skyline Corporation, Elkhart, IN - Toxicology Consultant
Coffield Ungaretti & Harris, Chicago, IL - Toxicology Consultant
Kenner Products, Cincinnati, OH - Toxicology Consultant
Hasbro, Inc., Pawtucket, RI - Toxicology Consultant
Milton Bradley, Inc., East Long Meadow, MA - Toxicology Consultant
Taylor Anderson & Travers, Boston, MA - Toxicology Consultant
Capehart & Scatchard, Mount Laurel, NJ - Toxicology Consultant
Kirby & Governo, Boston, MA - Toxicology Consultant
Hays, McConn, Rice & Pickering, Houston, TX - Toxicology Consultant
Crowe & Day, Los Angeles, CA - Toxicology Consultant
Ranger Industries, Tinton Falls, NJ - Toxicology Consultant
Naz-Dar/KC, Overland Park, KS - Toxicology Consultant
Healy & Healy, Boston, MA - Toxicology Consultant
Gallagher & Gallagher, Boston, MA - Toxicology Consultant
Moore & Van Allen, Raleigh, NC - Toxicology Consultant
Franklin International, Columbus, OH - Toxicology Consultant
American Plastic Toys Inc., Walled Lake, MI - Toxicology Consultant
Bird, Marella, Boxer, Wolpert & Matz, Los Angeles, CA - Toxicology Consultant
Kightlinger & Gray, Indianapolis, IN - Toxicology Consultant

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Christie, Pabarue, Mortensen & Young, Philadelphia, PA - Toxicology Consultant

M. Graham & Co., West Linn, OR - Toxicology Consultant

All American Graphics, Santa Monica, CA - Toxicology Consultant

American Art & Color, Princeton, NJ - Toxicology Consultant

Burns & Levinson, Boston, MA - Toxicology Consultant

Frisch Dudek Ltd., Milwaukee, WI - Toxicology Consultant

Kitch, Saurbier, Drutchas, Wagner & Kenney, Detroit, MI - Toxicology Consultant

Kaylin Products, Mt. Airy, MD - Toxicology Consultant

Sprayon Products, Bedford Heights, OH - Toxicology Consultant

Straight Edge, Brooklyn, NY - Toxicology Consultant

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