

Appendix 2

Curriculum Vitae of Health Group Members

Curriculum Vitae of Health Group Members

Phillip T. Goad Ph.D., Center for Toxicology and Environmental Health, LLC

Curriculum Vitae

PHILLIP T. GOAD, Ph.D.

Partner and Senior Toxicologist

Center for Toxicology and Environmental Health, L.L.C.
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Little Rock, AR 72201

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SUMMARY OF QUALIFICATIONS

Dr. Goad conducts toxicological evaluations, human health and ecological risk assessments, community and worker health evaluations, and regulatory compliance consultations. His consultation work includes cancer, birth defects, and target organ disease arising from occupational and environmental chemical releases. Dr. Goad provides on-site support in emergency settings such as train derailments and provides consultation and coordination services to clients regarding the specific standards described for OSHA, Worker Right-to-Know and SARA Title III compliance. Dr. Goad evaluates the results of employee health monitoring and training programs, and prepares, reviews, and summarizes corporate Material Safety Data Sheets. In addition, Dr. Goad provides testimony in State and Federal Courts in matters related to toxicology, environmental health and regulatory compliance. Dr. Goad serves as an Adjunct Assistant Professor in the Department of Pharmacology and Toxicology and the Department of Environmental and Occupational Health, College of Public Health at the University of Arkansas for Medical Sciences.

EDUCATION

Ph.D. 1982 Field of Study: Interdisciplinary Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR.

B.S. 1977 Chemistry (Magna Cum Laude), Harding College.

EXPERIENCE

- 1997-Present** **CENTER FOR TOXICOLOGY AND ENVIRONMENTAL HEALTH, L.L.C.**
Little Rock, AR
Partner/Senior Toxicologist
- 1992-1997** **TERRANEXT** (formerly Industrial Compliance),
Little Rock, AR
Senior Toxicologist
- 1989-1992** **TERRA INC.**
Little Rock, AR
Toxicologist/Teratologist
- 1985-1989** **WYETH-AYERST RESEARCH**
Chazy, NY
Teratologist
- 1981-1985** **INTOX LABORATORIES, INC.**
Redfield, AR
Director of Development Toxicology
- 1979-1981** **NATIONAL CENTER FOR TOXICOLOGICAL RESEARCH**
Jefferson, AR
Research Pharmacologist
Pharmacodynamics Branch
Division of Teratological Research

PROFESSIONAL AFFILIATIONS

- 2001-Present** **Assistant Professor**
Department of Environmental and Occupational
Health
College of Public Health
University of Arkansas for Medical Sciences
Little Rock AR
- 1998-Present** **Adjunct Assistant Professor**
Department of Pharmacology & Toxicology
University of Arkansas for Medical Sciences
Little Rock, Arkansas
- 1990-Present** **President's Council, Harding University**
- 1986-Present** **Teratology Society**
- 1985-Present** **Society of Toxicology**
- 1988-1989** **Middle Atlantic Reproduction and Teratology
Association (MARTA)**
- 1987-1989** **Adjunct Faculty**
Department of Biological Sciences
State University of New York
Plattsburgh, New York

1983-1985

Adjunct Instructor in Interdisciplinary Toxicology
University of Arkansas for Medical Sciences
Little Rock, Arkansas

PRESENTATIONS, ABSTRACTS, AND SYMPOSIUM PROCEEDINGS

Goad, P.T., W. Slikker, Jr., C.A. Kimmel, D.W. Gaylor and D.E. Hill. Maternal and fetal toxicity of ethanol: The role of altered nutrition. Clinical Research 28(5):872A, 1980.

Goad, P.T., W. Slikker, Jr., C.A. Kimmel, D.W. Gaylor and D.E. Hill. Significance of altered nutrition in ethanol fetotoxicity. The Toxicologist 1(1):28-29, 1981.

Goad, P.T., D.E. Hill, W. Slikker, Jr., C.A. Kimmel and D.W. Gaylor. The developmental effects of ethanol and the role of maternal nutrition. Teratology 24(1):A54, 1982.

Hill, D.E., W. Slikker, Jr., P.T. Goad, J.R. Bailey and A.G. Hendrickx. Transplacental pharmacokinetics of ethanol in rhesus and cynomolgus monkeys. Teratology 23(2):A63, 1981.

Slikker, W. Jr., P.T. Goad, J.R. Bailey and D.E. Hill. Ethanol elimination in the rhesus monkey: Comparison of mother, fetus and neonate. The Pharmacologist 23(3):202, 1981.

Goad, P.T., D.E. Hill, W. Slikker, Jr., C.A. Kimmel, J.F. Young, D.W. Gaylor. The role of the diet in fetotoxicity, blood levels and pharmacokinetics of ethanol in mice. Clinical Research 29(5):896A, 1981.

Hill, D.E., W. Slikker, Jr., J.R. Bailey, P.T. Goad and A.G. Hendrickx. Ethanol pharmacokinetics in maternal, fetal and neonatal monkeys. Clinical Research 29(5):A, 1981.

Goad, P.T. Presentation on "The Role of Good Laboratory Practice Regulations (GLPs) in Toxicology Studies," Interdisciplinary Toxicology Division Seminar Presentation, University of Arkansas for Medical Sciences, November 1, 1982.

Goad, P.T., J.M. Cranmer, D.L. Avery, C.H. Frith and M.F. Cranmer. The effect of acute trimethyltin exposure on spontaneous locomotor activity in mice. In: Proceedings of the International Conference on Neurotoxicity of Selected Chemicals, Chicago, 1982.

- Cranmer, J.M., P.T. Goad, D.L. Avery, S.C. Lewis, R.K. TeVault, R.D. Phillips and S.T. Cragg. Behavioral evaluation of petroleum hydrocarbons. In: Proceedings of the American Petroleum Institute Symposium on the Toxicology of Petroleum Hydrocarbons, Washington, D.C., 1982.
- Goad, P.T., D.E. Hill, W. Slikker, Jr., C.A. Kimmel and D.W. Gaylor. The developmental effects of ethanol and the role of maternal nutrition. Teratology 24(1):A54, 1982.
- Goad, P.T. Presentation on "Good Laboratory Practice Regulations," Advanced Toxicology Course Presentation, March 1983.
- Goad, P.T. Presentation on "Toxicology, Principles, Techniques, and Applications," Physical Science Seminar, Harding University, November 4, 1983.
- Goad, P.T. and J.M. Cranmer. Gestation period sensitivity of ethylene glycol monoethyl ether in rats. Toxicologist 4(1):87, 1984.
- Nelson, B.K., W.S. Brightwell, D.R. MacKenzie, J.R. Burg, W.W. Weigel and P.T. Goad. The teratogenic effects of methanol administered by inhalation to rats. Teratology 29, 1984.
- Nelson, B.K., W.S. Brightwell, D.R. MacKenzie, J.R. Burg, W.W. Weigel and P.T. Goad. Lack of teratogenic effects of ethanol administration by inhalation to rats. Teratology 29, 1984.
- Hardin, B.D., P.T. Goad and J.R. Burg. Developmental toxicity of diethyleneglycol monomethyl ether (diEGME). Teratology 31(3):54A, 1985.
- Brightwell, W.S., B.K. Nelson, D.R. MacKenzie-Taylor, J.R. Burg, A. Khan and P.T. Goad. Lack of teratogenicity of three butanol isomers administered by inhalation to rats. Teratology 35(2):56A, 1987.
- Goad, P.T. Presentation on "The Resource Conservation and Recovery Act (RCRA)," Executive Enterprises Environmental Regulations Course, Houston and Dallas, Texas, May and July, 1992.
- Goad, P.T. Presentation on "Toxicological Issues Associated with Pesticide Application," Arkansas Pest Control Association, Little Rock, Arkansas, October 1994.

- Goad, P.T. Presentation on "Resource Conservation Recovery Act," Toxicology and Government Regulations Course, University of Arkansas for Medical Sciences, April 3, 1995.
- Goad, P.T. Presentation on "*Daubert* and Multiple Chemical Sensitivities (MCS)," National Association of Railroad Trial Counsel, Pebble Beach, California, April 28, 1995.
- Goad, P.T. Presentation on "*Daubert* and Multiple Chemical Sensitivities (MCS)," 41st Annual Meeting of National Association of Railroad Trial Counsel, The Greenbrier White Sulphur Springs, West Virginia, July 31, August 1 & 2, 1995.
- Goad, P.T. 7th Annual Environmental Corporate Counsel Institute, "Anatomy of an Environmental Crisis: Managing the Crisis as it Unfolds", San Francisco, CA, November 2-3, 1995.
- Goad, P.T. Presentation on "Resource Conservation Recovery Act," Toxicology and Government Regulations Course, University of Arkansas for Medical Sciences, March 4, 1996.
- Goad, P.T. "Principles of Toxicology", Environmental Committee, Arkansas Bar Association, Little Rock, AR, March 19, 1996.
- Goad, P.T. Presentation on "Potential Human Health Effects of Diesel Exhaust Air Emissions", 42nd Annual Meeting of National Association of Railroad Trial Counsel, Le Meridien San Diego, Coronado, California, July 22-24, 1996.
- Goad, P.T. Presentation on "Sophistry or Science: The Use of Expert Testimony in Allocation Cases", 26th Annual Conference on Environmental Law, Keystone, Colorado, March 13-15, 1997.
- Goad, P.T., Millner, G.C. and Nye, A.C. Training Session on "Risk-Based Decision Making," to the Arkansas Department of Pollution Control and Ecology, Little Rock, AR, September 17, 1997.
- Goad, P.T., Millner, G.C. and Nye, A.C. Training Session on "Risk-Based Decision Making," to the Arkansas Environmental Federation, Hot Springs, AR, October 22, 1997.
- Goad, P.T., Millner, G.C., and Nye, A.C. Presentation on "An Assessment of Potential Environmental Impacts of Cement Kiln Dust Produced In Kilns Co-Fired With

Hazardous Waste Fuels,” at the Air & Waste Management Association, Waste Combustion in Boilers and Industrial Furnaces Conference in Kansas City, MO, April 15-17, 1998.

Millner, G.C., Nye, A.C., and Goad, P.T. Abstract and presentation on “Methodology for Evaluating Health Claims From Exposure to Arsenic in Soil Near a Superfund Site,” at the 14th Annual Conference on Contaminated Soils in Amherst, Massachusetts on October 19-22, 1998.

Gandy, J., Williams, S.W., Hill, R., and Goad, P.T. Abstract and presentation on “Determination of Acceptable Exposure Limits for the Anti-Viral Agent Ribovarin,” at the 38th Annual Meeting for the Society of Toxicology in New Orleans, Louisiana on March 14-18, 1999.

Goad, P.T. Presentation on “Resource Conservation Recovery Act,” Toxicology and Government Regulations Course, University of Arkansas for Medical Sciences, April, 1999.

Goad, P.T. Presentation on “Occupational Toxicology,” Advanced Toxicology Course, University of Arkansas for Medical Sciences, May, 1999.

Goad, P.T. Presentation on “Resource Conservation Recovery Act,” Toxicology and Government Regulations Course, University of Arkansas for Medical Sciences, March 2000.

PUBLICATIONS

Goad, P.T., D.E. Hill, W. Slikker, Jr. and D.W. Gaylor. The effect of dietary fortification on blood ethanol concentration, caloric consumption and weight gain during ethanol consumption in mice. *Drug-Nutrient Interaction* 1(3):213-228, 1982.

Goad, P.T. The role of diet in the fetotoxicity, blood levels and pharmacokinetics of ethanol in mice. Dissertation, University of Arkansas for Medical Sciences, 1982.

Cranmer, J.M. and P.T. Goad. Validation of selected behavioral tests for evaluating low-level toxicity, In: *Application of Behavioral Pharmacology in Toxicology*, G. Zbinden, V. Cuomo, G. Racagni, B. Weiss, (eds.), Raven Press, New York, pgs. 97-112, 1983.

- Hill, D.E., W. Slikker, Jr., P.T. Goad, J.R. Bailey, T.J. Sziszak and A.G. Hendrickx. Maternal, fetal and neonatal elimination of ethanol in non-human primates. *Development Pharmacology Therapeutics* 6:259-268, 1983.
- Ali, S.F., J.M. Cranmer, P.T. Goad, W.A. Slikker, R.D. Harbison and M.F. Cranmer. Trimethyltin induced changes of neurotransmitter levels and brain receptor binding in the mouse. *Neurotoxicology* 4(1):29-36, 1983.
- Goad, P.T., D.E. Hill, W. Slikker, Jr., C.A. Kimmel and D.W. Gaylor. The role of diet in the developmental toxicology of ethanol. *Toxicology and Applied Pharmacology* 73(2):256-267, 1984.
- Cranmer, J. S.; Goad, P. T. Validation of selected behavioral tests for evaluating low level toxicity. In: Zbinden, G., Editor. *Application of behavioral pharmacology in toxicology*. New York, NY: Raven Press; 1983: 97-112.
- Goad, P.T., D.E. Hill and W. Slikker, Jr. The developmental toxicology of ethanol. Final report No. 313-6037-6067. PHS, DHHS, FDA, National Center for Toxicological Research, 1983.
- Hardin, B.D., P.T. Goad and J.R. Burg. Developmental toxicology of four glycol ethers applied cutaneously to rats. *Environmental Health Perspective* 57:69-74, 1984.
- Nelson, B.K., J.V. Setzer, W.S. Brightwell, P.R. Mathinor, M.H. Kuczuk, T.E. Weaver and P.T. Goad. Comparative inhalation teratogenicity of five glycol ether solvents and an amino derivative in rats. *Environmental Health Perspective* 57:261-271, 1984.
- Nelson, B.K., W.S. Brightwell, D.R. MacKenzie, A. Khan, J.R. Burg, W.W. Weigel and P.T. Goad. Teratological assessment of methanol and ethanol at high inhalation levels in rats. *Fundamental and Applied Toxicology* 5:727-736, 1985.
- Hardin, B.D., P.T. Goad and J.R. Burg. Developmental toxicity of diethyleneglycol monoethyl ether (diEGME). *Fundamental and Applied Toxicology* 6:430-439, 1986.
- Ali, S.F., W. Slikker, Jr., G.D. Newport and P.T. Goad. Cholinergic and dopaminergic alterations in the mouse central nervous system following acute trimethyltin exposure. *Acta. Pharmacology Toxicology* 59:179-188, 1986.

- Hinderer, R.K., B.Y. Cockrell, S.M. Debanne and P.T. Goad. Male reproductive assessment of the rubber accelerator, n-oxydiethylene thiocarbamyl-n-oxydiethylene sulfonamide in rats. *Fundamental and Applied Toxicology* 9:732-772, 1987.
- Nelson, B.K., W.S. Brightwell, D.R. MacKenzie, A. Khan, J.R. Burg, W.W. Weigel and P.T. Goad. Teratogenicity of n-propanol and iso-propanol after high inhalation exposure to rats. *Food and Chemical Toxicology* 26(3):247-254, 1988.
- Nelson, B.K., W.S. Brightwell, A. Kahn, J.R. Burg and P.T. Goad. Lack of selective developmental toxicity of three butanol isomers administered by inhalation to rats. *Fundamental and Applied Toxicology* 12:469-479, 1989.
- Wright, D.M., B.D. Hardin, P.T. Goad and D.W. Chrislip. Reproductive and developmental toxicity of n, n-diethyl-m-toluamide in rats. *Fundamental and Applied Toxicology* 19:33-42, 1992.
- Davis, A.; Ruby, M. V.; Goad, P.; Eberle, S.; Chryssoulis, S. Mass balance on surface-bound, mineralogic, and total lead concentrations as related to industrial aggregate bioaccessibility. *Environ Sci Technol* 31(1):87-44, 1997.
- Goad, P.T., Millner, G.C., and Nye, A.C. An Assessment of Potential Environmental Impacts of Cement Kiln Dust Produced In Kilns Co-Fired With Hazardous Waste Fuels, in *Waste Combustion in Boilers and Industrial Furnaces, Proceedings of a Specialty Conference Sponsored by the Air & Waste Management Association* April 15-17, 1998, Kansas City, MO.
- Nye AC, Millner, G.C., Gandy, J, and Goad, P.T. Example of Risk Assessment Applications, *Principles of Toxicology: Environmental and Industrial Applications*, Williams, JL, James, RC, and Roberts, SM (eds.), John Wiley & Sons, Inc., New York. 2000.

Curriculum Vitae

ALAN C. NYE, Ph.D.

Director of Risk Assessment and Senior Toxicologist

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SUMMARY OF QUALIFICATIONS

Dr. Nye specializes in human and environmental risk assessment with particular experience in conducting risk assessments for Superfund sites across the United States. Dr. Nye provides expert information for the public in public hearings and community meetings and has served as a testifying expert and non-testifying consultant in numerous tort and environmental litigations. Dr. Nye also serves as an Adjunct Professor in the Department of Pharmacology and Toxicology, Division of Toxicology, at the University of Arkansas for Medical Sciences where he lectures graduate students in toxicology and environmental health sciences in the areas of metals toxicology and risk assessment.

EDUCATION

1986 Post-Doctoral Research, Duke University, Department of Pharmacology

1986 Ph.D., Field of Study: Interdisciplinary Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR.

1980 B.S., Pharmacy, University of Cincinnati, Cincinnati, OH

EXPERIENCE

1997-Present

Director of Risk Assessment and Senior Toxicologist,
Center for Toxicology and Environmental Health, L.L.C.,
Little Rock, AR

1992-1997

Senior Toxicologist,
Terranext (formerly Industrial Compliance)
Little Rock, AR

1986-1987

Toxicologist

S&ME, Inc.
Atlanta, GA

1985-1986 **Post-Doctoral Research Assistant**
Duke University,
Durham, NC

1982-1985 **Biologist**
Division of Genetic Toxicology
Department of Health and Human Services
Food and Drug Administration
National Center for Toxicological Research
Jefferson, AR.

1981-1982 **Staff Pharmacist**
St. Thomas Hospital
Nashville, TN

PROFESSIONAL AFFILIATIONS

Society for Risk Analysis
Society of Toxicology, South Central Chapter

PRESENTATIONS

Nye AC. 1999. Risk Assessment. Presented at the Forty-second Annual Arkansas Safety Conference. Hot Springs, Arkansas.

Millner GC, Nye AC, Goad PT. 1998. Methodology for Evaluating Health Claims from Exposure to Arsenic. Workshop presented at the Fourteenth Annual Conference on Contaminated Soils. University of Massachusetts, Amherst.

Millner GC, Nye AC, Zemo D, Foote G, Brorby G. 1998. Practical guidance for risk-based closure of sites impacted by diesel fuel and other petroleum hydrocarbons. Seminar presented at the Eighth Annual West Coast Conference on Contaminated Soils and Groundwater, Oxnard, California.

Millner GC, Nye AC. 1997. Practical guidance for risk-based closure of sites impacted by diesel fuel and other petroleum hydrocarbons. Workshop presented at the Seventh Annual West Coast Conference on Contaminated Soils and Groundwater, Oxnard, California.

Millner GC, Nye AC. 1997. Practical guidance for risk-based closure of sites impacted by diesel fuel and other petroleum hydrocarbons. Workshop presented at the Twelfth Annual Conference on Contaminated Soils. University of Massachusetts, Amherst.

Millner GC, Hewitt DH, and Nye AC. 1995. Evaluation of residential exposure to arsenic in soil near a Superfund site. Presented at the Society of Toxicology Annual Meeting. Baltimore Maryland.

Millner GC, Hewitt DH, Nye AC. 1995. Evaluation of residential exposure to arsenic in soil near a Superfund site. Presented at the Second International Conference on Arsenic Exposure and Health Effects. San Diego, California.

Millner GC, Nye AC, Goad PT, Shepherd G. 1995. Application of human health risk assessment to petroleum hydrocarbon impacted soil: A case study, paper presented at the Tenth Annual Conference on Hydrocarbon Contaminated Soils, University of Massachusetts, Amherst.

Millner, GC, Nye AC, Goad PT, G Shepherd. 1995. Application of human health risk assessment to petroleum hydrocarbon impacted soil: A case study, paper presented at the Tenth Annual Conference on Hydrocarbon Contaminated Soils. University of Massachusetts, Amherst.

Millner GC, Hewitt DH, Nye AC, Simmons HF, Vickers A. 1994. Risk-based clean-up goal for arsenic in soil: A reality check. Presented at the Society of Toxicology Annual Meeting. Dallas, Texas.

Millner, GC, Cragin D, Edwards DA, Nye AC. 1994. Review of risk assessment methodologies and their use with TPH. Paper presented at the Ninth Annual Conference on Hydrocarbon Contaminated Soils, University of Massachusetts, Amherst.

Millner GC, Hewitt DJ, Nye AC, Simmons H. 1993. Evaluation of arsenic exposure among employees at an active pesticide plant/superfund site. Paper presented at the International Conference on Arsenic Exposure and Health Effects. New Orleans, Louisiana.

Hewitt DJ, Millner GC, Nye AC, Simmons H. 1993. Correlation of urine, hair and fingernail arsenic bio-monitoring results. Paper presented at the International Conference on Arsenic Exposure and Health Effects. New Orleans, Louisiana.

Millner, GC, Hewitt DJ, Nye AC, Simmons H. 1993. Use of EPA risk assessment methods for developing a clean-up goal for arsenic in soil: a reality check. Paper presented at the International Conference on Arsenic Exposure and Health Effects. New Orleans, Louisiana.

James RC, Nye AC. 1987. Risk Assessment: Confounding Factors That Are Inherent To Present Methodologies. Presented at the International Congress on Hazardous Materials Management, Chattanooga, Tennessee.

S&ME (Westinghouse Environmental) Employee Health Lecturer. Lectured on chemical exposure, toxicology, and hazardous waste site health and safety.

PUBLICATIONS

Nye AC, Millner GC, Gandy J, Goad PT. 1999. Risk Assessment Examples. In: Principles of Toxicology: Environmental and Industrial Applications. Submitted for publication, May 1999. John Wiley & Sons, Inc.

Hewitt DJ, Millner GC, Nye AC, Simmons HF. 1995. Investigation of arsenic exposure from soil at a Superfund Site. *Environmental Research*: 68 73-81.

Hewitt DJ, Millner GC, Nye AC, Webb M, Huss RG. 1995. Evaluation of residential exposure to arsenic in soil near a superfund site. *Human and Ecological Risk Assessment*: Vol. 1, No. 3 pp. 323-335.

Millner GC, James RC, Nye AC. 1992. Human Health Based Cleanup Guidelines for Diesel Fuel No. 2. *Journal of Soil Contamination* 1(2) 103-157.

Nye AC, Rosen GM, Gabrielson EW, Keana JFW, Prabhu VS. 1987. Diffusion of singlet oxygen into human bronchial epithelial cells. *Biochim. et Biophys. Acta* 928: 1-7.

Abstracts

Nye AC, Millner GC, Gandy J, Goad PT. Example of Risk Assessment Applications, Principles of Toxicology: Environmental and Industrial Applications, Williams JL, James RC, Roberts SM (eds). John Wiley & Sons, Inc., New York. 2000.

Canada AT, Werkman RF, Nye AC, Rosen GM. 1987. Trypan blue exclusion: a poor indicator of cellular injury. *Toxicologist* 7(1), 684a.

Nye AC, Pounds JG. 1986. Effect of the calmodulin inhibitor W-13 on the cellular metabolism of calcium and lead. *Toxicologist* 6(1), 415a.

Nye AC, Pounds JG, Bowman PD, Goldstein GW. 1985. Cellular lead homeostasis and toxicity in cultured bovine brain capillary endothelial cells. *Toxicologist* 5(1), 533a.

Nye AC, Pounds JG, Bowman PD, Goldstein GW 1984. Effect of lead intoxication on calcium metabolism in cultured bovine brain capillary endothelial cells. *Toxicologist* 4(1), 487a.

Pounds JG, Nye AC. 1984. Effect of the calmodulin inhibitor, trifluoperazine (TFP), on the cellular metabolism of calcium-45 and lead-210 in cultured rat hepatocytes. *Toxicologist* 4(1), 488a.

Stephen T. Washburn, Environ Corporation

Curriculum Vitae

STEPHEN T. WASHBURN

Environ Corporation

EDUCATION

1982 M.S., Chemical Engineering, Massachusetts Institute of Technology

1980 B.S.E., Chemical Engineering, Princeton University

EXPERIENCE

Mr. Washburn is a Principal at ENVIRON Corporation. He has a broad background and over 18 years of experience in environmental science and engineering, with specific expertise in risk assessment and risk-based engineering. Specific areas of expertise include contaminant fate and transport, exposure assessment, risk-based evaluation and remediation of hazardous waste and industrial sites, hazardous waste management, and chemical process design. His work at ENVIRON has included the following:

- Conducted air quality evaluations and risk assessments at a broad array of industrial facilities, hazardous waste sites, transportation facilities (including airports), and commercial and residential settings. Examples include evaluations of transportation facilities in Illinois, New York, and New Jersey; risk assessments for incinerators in Pennsylvania, New York, Ohio, and Canada; indoor air assessments in Israel, Pennsylvania, New York, Virginia, Minnesota, Ohio and Puerto Rico; and risk evaluations for atmospheric emissions from RCRA and Superfund sites across the country.
- Assisted private sector clients in evaluating potential exposures to substances in consumer products, and the risks associated with such exposures, as part of the development and implementation of product stewardship programs.
- Performed comprehensive risk assessments for numerous RCRA and Superfund sites, including facilities in Ohio, Illinois, Indiana, Tennessee, New Jersey, Pennsylvania, New York, Oklahoma, and California. Developed risk-based remediation strategies for hazardous waste and industrial sites across the U.S. These strategies have been used to successfully negotiate for cost-effective, protective remedies. Examples include the Whitmoyer Superfund Site in Pennsylvania, the DuPont RCRA Site in New Jersey, and the Rocky Mountain Arsenal Superfund Site in Colorado.
- Provided litigation support on toxic tort lawsuits alleging health effects associated with possible historical exposure to chemicals in air and ground water.
- Conducted Monte Carlo risk assessments at sites with lead contamination in New Jersey and Pennsylvania. Both projects involved the use of Uptake/Biokinetic (UBK) modeling for evaluating the risks posed by exposures to lead.

- Selected by U.S. EPA to serve on the external expert peer review panel for the *Human Health Risk Assessment*, *GE/Housatonic River Site*.
- Selected by U.S. EPA to serve on the external expert peer review panel for the *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*.
- Selected by U.S. EPA to serve on the external expert peer review panel for the multimedia, multipathway, and multiple receptor risk assessment (3MRA) model developed for the Hazardous Waste Identification Rule (HWIR).
- Selected by the U.S. Army Environmental Center to serve as a Subject Matter Expert (SME) on expert peer review panels to evaluate proposed and ongoing remediation efforts at Base Realignment and Closure (BRAC) sites and active Army installations. Participated in the independent technical review of over a dozen active and inactive installations, including Camp Navajo (Arizona), the San Francisco Presidio (California), the Redstone Arsenal (Alabama), Fort Ord (California), the Aberdeen Proving Grounds (Maryland), and the Milan Army Ammunition Plant (Tennessee).
- Principal-in-charge and primary agency contact for a multimillion-dollar remedial design project at a complex Superfund site in Pennsylvania. Responsible for developing and implementing site characterization plans, treatability tests and remedial design for soils, lagoons, drummed waste, ground water, and buildings.
- Evaluated the risks associated with polychlorinated biphenyls (PCBs) in various surface water bodies, including the Sheboygan River in Wisconsin and the Kalamazoo River in Michigan.
- Provided litigation support to private parties in cost allocation/cost recovery disputes at several Superfund Sites, including the Helen Kramer Landfill in New Jersey, the Fike Artel Site in West Virginia, the Buzby Landfill in New Jersey, and the Kin-Buc Landfill in New Jersey.
- One of nine scientists selected nationwide by the American Society of Testing Materials (ASTM) to provide training to state regulatory agencies on the ASTM Risk-Based Corrective Action (RBCA) standard (E-1739). Has provided training in over 10 states, including New Jersey, Pennsylvania, Oregon and Michigan.
- Principal-in-charge of human health and ecological risk assessments for the WTI hazardous waste incinerator in East Liverpool, Ohio. These assessments included an evaluation of the potential effect of routine stack emissions, fugitive emissions, and accidental releases on the surrounding community and on ecological receptors.
- Selected by the U.S. Army Environmental Center to provide training to Army personnel on the principles of environmental restoration. Developed course materials on ecological risk assessment and risk management. Conducted training at several installations, including Picatinny (New Jersey), Ravenna (Ohio), and Seneca (New York).

- Retained by the U.S. Department of Justice as an expert to review EPA trial burn plans and risk assessments at the Drake Chemical Superfund Site in Pennsylvania.
- Evaluated disposal alternatives for dioxin-contaminated dredge spoils for a major industrial facility in New Jersey. Supervised bioaccumulation studies involving aquatic organisms to evaluate the potential for dioxin accumulation following ocean disposal.
- Coordinated a technical review of a proposed hazardous waste treatment facility in Ontario, Canada. Evaluated the proposed design and operation, and conducted a detailed, multipathway risk assessment to estimate the facility's potential impacts on human health and the environment. This risk assessment considered not only the emissions released during routine operation, but also those that would be released during facility upsets and transportation accidents. Provided expert testimony on human health and ecological risk assessment before the Ontario Environmental Assessment Board.
- Performed a multipathway exposure evaluation as part of a comparative assessment of the public health risks posed by five remedial alternatives for the McColl Superfund site in California. This assessment included an evaluation of risks to workers and the nearby community. Provided videotaped expert testimony presented to USEPA Region IX.
- Acted as the Principal-in-Charge or project manager on ecological risk assessments at hazardous waste sites, industrial facilities, and incinerators.
- Selected to serve as a member of the Risk Assessment Subcommittee of the Pennsylvania Science Advisory Board. This Subcommittee developed recommendations that were ultimately incorporated into Pennsylvania's Brownfield legislation (Act 2).
- Conducted a Monte Carlo risk assessment of potential chemical releases from buried drums at an operating chemical facility. Calculated probabilistic distributions for chemical concentrations in the environment, human dose through various exposure pathways, and resulting human health risk.
- Evaluated the potential risks posed by a proposed steel mini-mill facility in Pennsylvania. Provided testimony in public hearings before the Pennsylvania Department of Environmental Resources.
- Performed a Monte Carlo risk assessment in Ohio to support risk-based Remedial Action Objectives (RAOs) and Preliminary Remediation Goals (PRGs) at a former refinery site.
- For the City of Bloomington, Indiana, directed a technical evaluation of the Superfund cleanup of six PCB-contaminated sites. Reviewed the design of a 200 ton/day rotary kiln combustor engineered to co-incinerate municipal solid waste (MSW) and PCB-contaminated soils; analyzed the projected performance of the kiln and its associated pollution control equipment during both routine operation and malfunction; and evaluated technical plans for the excavation,

transport, and interim storage of contaminated material. Organized and participated in public forums to address human health and environmental risk issues related to the cleanup.

- Performed a peer review of the design and operation for a proposed commercial medical waste incinerator. Determined status of the facility with regard to best available control technology (BACT), and evaluated potential risks posed through indirect food chain pathways. Provided expert testimony on engineering and risk issues.
- Assisted a national public interest group in evaluating the air quality impacts associated with the proposed expansion of a county airport. Regulatory compliance was also assessed.
- Conducted a comparative assessment of the occupational risks posed by two remedial alternatives for the Hardage Superfund hazardous waste disposal site in Oklahoma. The assessment considered both potential exposures of workers to toxic chemicals and injuries associated with the use of heavy equipment.
- Designed and assisted in implementing tests at a paper and pulp mill boiler in Maine to determine the source of elevated dioxin levels in ash.
- Conducted a detailed review of the state-of-the-art for designing, operating, and siting hazardous waste landfills built in the U.S. between 1975 and 1982.
- For the New York City Department of Sanitation, conducted a multipathway risk assessment for retrofitted municipal solid waste incinerator in Southwest Brooklyn.
- Evaluated the technical capabilities of a U.S. contractor involved in the design and construction of hazardous waste incinerators. The study was used by a multinational, European-based corporation to help decide whether to acquire the contractor to enter the U.S. hazardous waste incinerator market.
- Conducted a multipathway risk assessment for a proposed hazardous waste physical/chemical treatment plant and landfill in Manitoba, Canada.
- Examined the feasibility of irrigating a golf course with treated wastewater; assessed the need for a buffer zone between the irrigated areas and an adjacent housing development to ensure the protection of public health.
- Reviewed state-of-the-art practices for the disposal of chlorinated solvents in the U.S. prior to 1972, and evaluated the extent of public concern regarding industrial chemical pollution of ground water during that period.
- Prepared responses to questions raised by concerned citizens during the siting of a hazardous waste incinerator in Louisiana.
- Provided litigation support to the owner of a large office building by evaluating the risks posed by PCB transformers in the building; reviewed historical data on PCB toxicity and PCB transformer spills and fires.

- Performed an analysis of the impact of leachate from the major New York City-area landfills on adjoining surface water quality.

Prior to joining ENVIRON, Mr. Washburn held the following positions:

- Process Design Engineer, Kesler Engineering. Specialized in the process redesign of petroleum refineries and the development of engineering software. Supervised operations analysis and computer modeling; and oversaw the development of rigorous distillation, equilibrium flash, and two-phase pressure drop simulation software for microcomputers. This software was eventually marketed by Kesler Engineering.
- Materials Analyst, Alfa Laval AB. Analyzed plastics using differential scanning calorimetry, gas chromatography, and thermogravimetric analysis.
- Research Assistant, Massachusetts Institute of Technology. Analyzed polycyclic aromatic hydrocarbon (PAH) levels in diesel soot using high-performance liquid chromatography, and evaluated the extent of PAH desorption in the human gastrointestinal tract.

PUBLICATIONS AND PRESENTATIONS

Jeng, C.Y., William Benni, Stephen Song, and Stephen Washburn. 2003. Evaluation of Vapor Intrusion Pathway: A Multifaceted Approach. In Proceedings of 2003 Conference on Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Assessment and Remediation. August 19-22. Costa Mesa, California.

Washburn, S. and C. Doyle. 2002. Urban Wastes. In *Encyclopedia of Global Environmental Change, Volume 3*. T. Munn, Ed. Chichester, England: John Wiley & Sons.

Harris, R., S. Washburn, and F. Colombo. 2000. Risk of vapor migration from subsurface contamination into indoor air. In *Risk Analysis II*, ed. C.A. Brebbra. Southampton, UK: WIT Press. October.

Washburn, S. 2000. Application of risk assessment to site remediation. Invited Speaker. Fifth Annual Pennsylvania Bar Institute Environmental Law Forum, Harrisburg, Pennsylvania. March.

Washburn, S.T., and K.G. Edelman. 1999. Development of risk-based remediation strategies. Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management. Vol. 3, No. 2. April.

Washburn, S., D. Arsnow, and R. Harris. 1998. Quantifying uncertainty in human health risk assessment using probabilistic techniques. *Proceedings of the Risk Analysis '98 Conference, Valencia, Spain*. Southampton, U.K.: Computational Mechanics Publications. October.

Cizerle, K., S. Song, and S. Washburn. 1998. Potential risks associated with vapor migration from ground water into buildings. In *Risk, Resource and Regulation*

- Issues*, ed. G.B. Wickramanayake and R.E. Hinchee. Columbus, Ohio: Battelle Press.
- Canter, D.A., M. Lorber, C.T. Braverman, R.O. Warwick, J.F. Walsh, and S.T. Washburn. 1998. Determining the margin of incremental exposure: an approach to assessing non-cancer health effects of dioxins. Presented at the 18th Symposium on Halogenated Environmental Organic Pollutants (Dioxin '98), Stockholm Sweden. August.
- Washburn, S. 1998. Risk assessment of environmental exposures. Presented at the *Conference on Key Environmental Issues in U.S. EPA Region II*, sponsored by the Association of the Bar of the City of New York in conjunction with USEPA Region II, the American Bar Association, the New Jersey Bar Association and the New York State Bar Association. June.
- Washburn, S., C.F. Kleiman, and D.E. Arsnow. 1998. Applying USEPA risk assessment guidance in the 90s. *Human and Ecological Risk Assessment*: 4(3). June.
- Washburn, S. 1998. Chairperson for Human Health Risk Assessment Session. First International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, Cal. May.
- Washburn, S., and D.E. Arsnow. 1997. Exposure to mainstream cigarette smoke: Comparing the results of a theoretical cancer risk assessment to the results of epidemiological studies. Presented at the Society for Risk Analysis Conference, Washington, D.C. November.
- Canter, D.A., R.O. Warwick, J.F. Walsh, and S.T. Washburn. 1997. Evaluating non-cancer health effects of dioxins using a "margin of incremental exposure" approach. Presented at the Society for Risk Analysis Conference, Washington, D.C. November.
- Washburn, S. 1997. Risk assessment at hazardous waste and industrial sites. Presented at the American Law Institute - American Bar Association (ALI-ABA) Course of Study, Washington, D.C. October.
- Washburn, S. 1997. Invited Speaker. Ninth Annual UST/LUST National Conference, Sponsored by the USEPA Office of Underground Storage Tanks, Charlotte, N.C. March.
- Washburn, S. 1997. Invited Speaker. RBCA Leadership Council. Implementing risk-based corrective action for environmental programs. Washington, D.C. February.
- Washburn, S. 1996. ASTM risk-based corrective action (RBCA). Presented at the Environmental Exposition. Edison, New Jersey. May.
- Nielsen, J.M., S.T. Washburn, and K.M. Keoughan. 1996. Strategy for developing remediation target concentrations based on human exposure duration considerations. In *Environmental Toxicity and Risk Assessment, Fourth Volume*,

- ASTM STP 1262*, eds. Thomas W. LaPoint, Fred T. Price, and Edward E. Little. American Society for Testing and Materials. May.
- Washburn, S. 1996. The wanderlust of risk-based corrective action (RBCA): Evaluating exposures and petroleum fate and transport. In *L.U.S.T. Line*, a publication of the New England Interstate Water Pollution Control Commission. January.
- Washburn, S. 1996. Moderator and Invited Speaker. Eighth Annual UST/LUST National Conference, Sponsored by USEPA Office of Underground Storage Tanks, Chicago, Ill. March.
- Washburn, S. 1995. A risk-based corrective action success story. Presented at the State University of New York (SUNY) Seminar "New Directions for Ground Water Cleanup," Stony Brook, N.Y. December 5.
- Washburn, S. 1995. Applying EPA risk assessment guidance in the 1990s. Presented at the "State of Practice of Risk Assessment in Human Health and Environmental Decision-Making" Workshop, Tallahassee, Fla., December 13.
- Washburn, S., J. Warnasch, and R.H. Harris. 1994. Risk assessment in the remediation of hazardous waste sites. In *Remediation of Hazardous Waste Contaminated Soils*, eds. Trantolo and Wise. Marcel Dekker, Publishers.
- Washburn, S. 1994. How to calculate dose and risk, and accommodate uncertainty. Presented at the Government Institutes Seminar on Environmental Risk Assessments, Orlando, Fla., March.
- Washburn, S. 1994. Elements of toxicology and chemical risk assessment. Presented at the UTECH Berlin Environmental Technology Forum, Berlin, Germany. February.
- Washburn, S. 1994. Panelist, Seminar on Ethics in Manufacturing, Research, and Computing, School of Engineering, Princeton University, Princeton, N.J. February.
- Washburn, S., and R.H. Harris. 1993. Application of Monte Carlo techniques in risk assessment. Presented to the Michigan Department of Natural Resources. January.
- Washburn, S., W.W. Li, and A. Nichols. 1993. Incineration, risk assessment and the Clean Air Act. Presented at the 1993 Incineration Conference, Knoxville, Tenn. May.
- Washburn, S. 1993. Improving risk assessment application: Status of current efforts. Presentation at Clean Site's Superfund Reauthorization Outreach Seminar, Seattle, Wash. March.
- Harris, R.H., R. Kapuscinski, C. Kleiman, and S. Washburn. 1993. Risk assessment in the remedy selection process at hazardous waste sites. In *Hazard Assessment of Chemicals*, Vol. 8, ed. J. Saxena. Taylor & Francis, Publishers.

- Washburn, S. 1993. The potential liabilities of mining landfills. Presented at the National Conference on Reclaiming Landfills. March.
- Washburn, S. 1993. A typical case example: Baseline risk assessment for a site with soil and ground water contamination. Presented at the Government Institutes Conference on Environmental Risk Assessment: Techniques and Applications, Arlington, Virg. February.
- Washburn, S., L. Barnhorn, and R.H. Harris. 1992. Risk assessment in the remediation of complex industrial facilities. In *Proceedings of the Twenty-Fourth Mid-Atlantic Industrial Waste Conference*, eds. Reed and Stack. Technomic Publishing Co.
- Washburn, S. 1992. Panelist, Seminar on Ethics and Environmental Consulting, Rider College, N.J. December.
- Simmonds, J., S. Washburn, K. Hentz, and R.H. Harris. 1992. Developments in the use of risk assessment to evaluate complex hazardous waste management facilities. *The Environmental Professional*, 14.
- Washburn, S. 1992. National Conference on the National Institutes for the Environment. Vice Chairman of the Pollution Prevention and Mitigation Working Group. Washington, D.C. May.
- Washburn, S. 1992. Risk assessment under the 1990 Clean Air Act Amendments. Presented at the First National Symposium on Permitting Under the Clean Air Act Amendments: Technologies at Work, Washington, D.C. April.
- Washburn, S. 1992. Selecting remedies at Superfund sites. Presented at the Government Institutes Conference on Environmental Risk Assessments: Techniques of Applications. April.
- Washburn, S., and A. Kahn. 1991. Uncertainties in estimating chemical degradation and accumulation in the environment. In *Risk assessment for municipal combustion: Deposition, food chain impacts, uncertainty, and research needs*, ed. C. Travis. New York: Plenum Press.
- Washburn, S., and R.H. Harris. 1991. Necessary evils. *Issues in Science and Technology* (Fall). National Academy of Sciences.
- Washburn, S. 1991. Risk assessment and its uses in environmental regulations. Presentation for the Center for Energy and Environmental Management (CEEM), Alexandria, Virg., October.
- Washburn, S. 1990. The accumulation of chlorinated dibenzo-p-dioxins and dibenzofurans in milk and beef. In *Health Effects of Municipal Waste Incineration*, eds. C. Travis and H. Hattemer-Frey. Boca Raton, Fla.: CRC Press, Inc.
- Washburn, S. 1990. Assessing the risks of solid waste management. Presented at the Seminar Series on Solid Waste Management in the 1990s, Rensselaer Polytechnic Institute. April.

- Kapuscinski, R., S. Washburn, and R.H. Harris. 1990. Chapter 40: The use of risk assessment in selecting among remedial options for soil contamination. In *Proceedings of the Fifth Annual Conference on Hydrocarbon Contaminated Soils*.
- Washburn, S. 1990. Ethics and environmental consulting. Presentation at the Colloquium on Ethics in Industry, Rutgers University, New Brunswick, N.J. April.
- Washburn, S., M. Baviello, and M. Scott. 1989. Assessing the potential risks and liabilities of on-site hazardous waste incineration. In *Proceedings of the Hazardous Materials Management Conference and Exhibition*, Hazmat West 1989, Long Beach, Calif.
- Washburn, S., J. Brainard, and R. Harris. 1989. Human health risks of municipal solid waste incineration. *Environmental Impact Assessment Review* 9(3).
- Scott, M., and S. Washburn. 1989. Role of risk management in the siting of the OWMC waste management facility. In *Proceedings of the 6th National Conference on Hazardous Wastes and Hazardous Materials*, Hazardous Materials Control Research Institute, New Orleans.
- Washburn, S. 1989. Assessing human health risks from municipal solid waste incineration. Presented at the Society for Risk Analysis 1989 Annual Meeting, San Francisco. October.
- Washburn, S. 1989. Uncertainties in estimating chemical degradation and accumulation in the environment. Presented at the EPA/Oak Ridge National Laboratory Workshop on Risk Assessment for Municipal Waste Combustion: Deposition, Food Chain Impacts, Uncertainty, and Research Needs, Cincinnati. June.
- Washburn, S. 1988. The role of risk assessment in evaluating hazardous waste incineration. In *Proceedings of Wastech '88 - The Future of Waste Management: Examining Technological Development*, National Solid Wastes Management Association, Boston.
- Harris, R., and S. Washburn. 1988. The qualitative and quantitative risks of incinerating hazardous wastes. *Journal of the American College of Toxicology* 7(4):551.
- Washburn, S. 1988. Assessing the risks of hazardous waste incineration facilities: A case study. Presented at the International Symposium on Incineration of Industrial and Hazardous Wastes, Washington, D.C. May.
- Washburn, S. 1988. Ethics and environmental consulting. Colloquium on Ethics in Industry, Trenton State College, Trenton, N.J. May.
- Washburn, S. 1987. The application of risk assessment to incineration facility operations. Presented at the Air Pollution Control Association Technical Conference, Atlantic City, N.J. November.

Curriculum Vitae

JOSEPH QUINN JARVIS, M.D., M.S.P.H.

Work Address: 51 North Wolcott Street
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(801) 533-0902 (Fax)

Birth Date: March 29, 1954
Tucson, Arizona

Citizenship: United States of America

Social Security Number: 527-11-4243

EDUCATION

- 1972-78** B.A., English, Brigham Young University, Provo, Utah
- 1978-82** M.D., University of Utah School of Medicine, Salt Lake City, Utah
- 1982-85** Residency, Family Practice/Community Medicine, University of Utah School of Medicine, Salt Lake City, Utah
- 1984-86** M.S.P.H., University of Utah School of Medicine, Salt Lake City, Utah
- 1985-86** Fellowship, Occupational and Environmental Medicine, University of Utah School of Medicine, Salt Lake City, Utah

BOARD CERTIFICATION AND LICENSURE

- 1986, 92, 98** Family Practice
- 1988** Occupational Medicine
- 1989** Public Health/General Preventive Medicine

Licensure: Utah, Nevada

PROFESSIONAL EXPERIENCE

Hospital Affiliations:

- 1990-93** National Jewish Center for Immunology and Respiratory Medicine,
Denver, Colorado

- 1988-90** Washoe Medical Center, Reno, Nevada
- 1985-86** Holy Cross Hospital, University of Utah Hospital, Primary Children's Medical Center, Salt Lake City, Utah

POSITIONS:

- 2004-** President, Joseph Q. Jarvis Consulting, Inc.
- 1997-** Associate Professor, Department of Family/Community Medicine
University of Nevada School of Medicine, Reno and Las Vegas, Nevada
- 1994-** Consultant, Occupational, Environmental, and Public Health
- 1994-97** Director, Medical Affairs and Special Programs, Family/Community Health Services Division
Colorado Department of Public Health and Environment
Clinical Assistant Professor, Department of Preventive Medicine and Biometrics
University of Colorado Health Sciences Center, Denver, Colorado
- 1990-93** Staff Physician, Occupational and Environmental Medicine Division
National Jewish Center for Immunology and Respiratory Medicine
Assistant Professor, Department of Preventive Medicine and Biometrics
University of Colorado Health Sciences Center, Denver, Colorado
- 1989-90** Assistant Dean, Medical Programs
Assistant Professor, Department of Family and Community Medicine
Medical Director, AIDS Education and Training Center and Nevada Area Health Education Center
University of Nevada School of Medicine, Reno and Las Vegas, Nevada
- 1987-89** State Health Officer, Nevada
Clinical Assistant Professor, Department of Family/Community Medicine
University of Nevada School of Medicine, Reno, Nevada
- 1986-87** Medical Officer, Office of Occupational Medicine
Occupational Safety and Health Administration/Department of Labor, Washington, D.C.
Clinical Assistant Professor, Family Practice Residency
Georgetown University School of Medicine, Washington, D.C.
- 1985-86** Instructor, Family Medicine
University of Utah School of Medicine, Salt Lake City, Utah

HONORS AND COMMUNITY SERVICE

- 2002-present** Chair, Utah Newborn Screening Committee and Member, Utah Genetics Advisory Committee

- 2001-present** President, Utah Health Alliance
- 2000-02** Volunteer Venue Doping Control Officer, Salt Lake City Olympic Committee
- 1996-97** Chair, Professional Education Committee, Colorado March of Dimes
- 1993** Florence Sabin Award, Colorado Public Health Association
- 1992-94** Colorado Public Health Association, External Vice President
- 1991-93** Agency for Toxic Substances and Diseases Registry Clinical Environmental Medicine Fellowship
- 1990** Special Commendation, University of Nevada School of Medicine
- 1986** Elected to Phi Kappa Phi Honor Society, University of Utah
- 1985** Teacher Development Award, American Academy of Family Physicians
- 1982** Family Practice Student of the Year, University of Utah School of Medicine
- 1978** Graduate, cum laude, Brigham Young University

ADMINISTRATIVE EXPERIENCE

1994-97 **DIRECTOR, MEDICAL AFFAIRS AND SPECIAL PROGRAMS, COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

Director, Mountain States Regional Genetic Services Network: Participated in the development of a regional data system for genetic services, organized regional response to Healthy People 2000 objectives for genetic services, and supported the development of managed care guidelines for genetic services.

Director, Newborn Screening Program: Participated in the major revision of newborn screening statutes (requiring second test) and regulations (removing certain diseases from the program). Improved newborn screening practice in follow-up of congenital hypothyroidism.

Medical Consultant, Division of Family and Community Health Services, including statewide programs for children with special health needs, family planning, prenatal care, rural health, migrant health, community health nursing, and oral health.

1987-89 **NEVADA STATE HEALTH OFFICER**

Acting State Epidemiologist: Supervised communicable disease staff including outbreak investigation, STD epidemiology, AIDS program

development, TB control, immunizations, and disease surveillance. Participated in a major revision of communicable disease control laws. Established a trauma registry; directed State Cancer Registry, completed Epidemiology in Action Course, CDC 1988.

Health Regulation: Commissioner of Food and Drugs, statutory oversight of all Nevada HMO activities, author of regulations for hospitals performing open heart surgery, neonatal intensive care, burn units, and organ transplants. Performed compliance evaluations for trauma centers.

Health Planning: Chair of the Nevada Primary Care Advisory Council, implementing and developing the state/federal Primary Care Cooperative Agreement; Board Member, Nevada Area Health Education Center; Medical Director, AIDS Education and Training Center; Member, Nevada Emergency Response Commission.

Maternal/Child Health: Supervised the two major state clinics serving children up to age 8 with developmental delays, professional staff including physicians, nurses, physical therapy, occupational therapy, nutrition and child development specialists; Medical Director of State Genetics Services and regional representative to Council of Regional Networks; published first Nevada report on birth outcomes for Medicaid recipients; revised regulations for newborn screening.

1986-87 MEDICAL OFFICER, OSHA

Health Standards: Assisted policy development as expert in medical surveillance for cadmium, MDA, and blood-borne infectious disease standards.

Compliance: Reviewed medical records in the field for compliance with record keeping requirements; served as expert interpreting medical surveillance requirements of asbestos and lead standards; served as expert for field investigations involving mercury and carbon monoxide poisoning.

Other Duties: Assigned as Occupational Safety and Health Administration representative to the Toxic Substances Control Act Interagency Testing Committee; completed National Library of Medicine Course (“On-line Search of Bibliographic Resources”).

CLINICAL/CONSULTING EXPERIENCE

1994-present PRIVATE CONSULTING

Public Health and Environmental Medicine: Clients include ENSR Consulting (Colorado), City of Boynton Beach (Florida), Clackamas Community College (Oregon), American Red Cross (Minnesota), Nevada State Division of Occupational Health and Safety, Arizona Department of Health Services, Colorado Department of Public Health and Environment, Northwest Kaiser Permanente (Oregon), Employer’s Insurance Company

of Nevada, LeBoeuf, Lamb, Greene, and MacRae (Colorado), Jensen, Garrelson, Verret, and Morford (Alaska), Holme, Roberts, and Owens (Colorado), McDonough and Wieland (Florida), San Diego State University (California), Santa Clara County (California), Evergreen School District (Washington), Utah Department of Health, Freeborn and Peters (Colorado, Texas), McGregor and Garrie (California), U.S. General Services Administration (Missouri), AQS Services (Georgia), DuPage County (Illinois), Clovis Unified Schools (California), U.S. Courts, Middle District of Florida, Santa Cruz County (California), Rocky Mountain Center for Occupational and Environmental Medicine (Utah), University of Louisville (Kentucky), Pacific Regent Homeowners Association (California), Hokoijitsugyo Company (California), Holland and Knight (Florida), Morrone Gardens (California), the Church of Jesus Christ of Latter-day Saints (Utah), Foster, Pepper, and Shefelman (Washington), Utah Labor Commission, Hilton Hawaiian Village, Harrah's Hotels and Casinos (Nevada), Pierce, Couch, Hendrickson, Baysinger, and Green (Oklahoma), Memphis City Schools (Tennessee), Shim and Chang (Hawaii), OEMI (Maryland), Hilton Guam Resort, GAB Robins (Idaho), SRS (Nevada), Kirton and McConkie (Utah), Hilton Grand Vacations, Candlewood Suites, Deutsche Bank (New York), Cobb and Irwin (Georgia), McManus, Schor, Asmar, and Darden (Washington, DC), CorVel (Nevada), Sherwin Williams Company (Pennsylvania), de la Parte and Gilbert (Florida), and Anderson, Julian, and Hull (Idaho).

1990-93 STAFF PHYSICIAN, NATIONAL JEWISH CENTER FOR IMMUNOLOGY AND RESPIRATORY MEDICINE

Duties: Clinical evaluation and care of patients with occupational lung disease, medical surveillance of asbestos-exposed workers, respirator fit medical clearance; completed certification by Colorado Division of Workers' Compensation for impairment ratings.

Consulting Duties: U.S. Department of Energy, Washington, D.C.; Imperial Polk County, Florida, Investigation of Polk County Courthouse; Colorado Department of Health, ASARCO/Globeville Neighborhood Health Effects; Cherry Creek School District, Indian Ridge Elementary School Building Investigation; Canon City/Lincoln Park neighborhood (investigated alleged Lung Cancer Cluster near uranium mill); expert witness in Workers' Compensation or other litigation; performed independent medical evaluations.

1987-90 UNIVERSITY OF NEVADA SCHOOL OF MEDICINE

Clinical Duties: Member of Family Practice Service including both clinic and inpatient attending (no obstetrics).

1986-87 GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE

Clinical Duties: Attending physician, Family Practice Clinic.

1985-86 UNIVERSITY OF UTAH SCHOOL OF MEDICINE

Clinical Duties: Physician staff, Northwest Family Practice Center, including both clinic and inpatient attending (with obstetrics).

TEACHING EXPERIENCE

Curriculum Development:

- 1990-92** Chair, Curriculum Committee, Occupational Medicine Residency, University of Colorado School of Medicine and National Jewish Center for Immunology and Respiratory Medicine.
- 1989** Course Committee, "Medicine and Society," University of Nevada School of Medicine.
- 1989** Small Group Case Studies Co-author, "Medicine and Society," University of Nevada School of Medicine.
- 1985** Curriculum Committee, Department of Family and Community Medicine, University of Utah School of Medicine.
- 1983-85** Preventive Cardiology Steering Committee, University of Utah School of Medicine.
- 1981-82** Curriculum Committee, University of Utah School of Medicine.

MEDICAL STUDENT TEACHING:

- 1987-2003** Lecturer, Occupational Medicine, Public Health, and Epidemiology, University of Nevada School of Medicine (highest rated lectures for course each year).
- 1991-96** Lecturer, Occupational Medicine, University of Colorado Health Sciences Center (consistent outstanding evaluations).
- 1991** Small Group Leader, FirstYear Community Medicine Survey Course, University of Colorado Health Sciences Center.
- 1985** Small Group Leader, Medicine and Society, University of Utah School of Medicine.

RESIDENT TEACHING (SELECTED):

- 2000** Family Practice Resident Teaching Session, Work-related Reproductive Health Problems, University of Nevada School of Medicine, Reno Family Practice Residency.
- 2000** Family Practice Resident Teaching Session, Building-related Health Problems, University of Nevada School of Medicine, Las Vegas Family Practice Residency.

- 1998** Family Practice Resident Teaching Session, Introduction to Clinical Occupational Medicine, St. Mark's Family Practice Residency, Salt Lake City, Utah.
- 1995** Family Practice Resident Teaching Session, Introduction to Clinical Occupational Medicine, University of Utah School of Medicine.
- 1992-95** Family Practice Conference, Introduction to Clinical Occupational Medicine, Rose Medical Center, Denver, Colorado.
- 1990** Family Practice Conference, Occupational Asthma, St. Mary's Hospital, Grand Junction, Colorado.
- 1987-90** Family Practice Conferences, University of Nevada School of Medicine (Public Health in Nevada, Occupational Medicine in Family Practice, Maternal Child Health in Nevada).

GRADUATE STUDENT TEACHING (SELECTED):

- 2001-02** Lecturer, Health Care Reform, Brigham Young University.
- 1998** Lecturer, Health Care Reform, J. Reuben Clark Law School, Brigham Young University.
- 1991-93** Lecturer, Occupational Medicine, Environmental Health Problems Course, University of Colorado Health Sciences Center.
- 1992** Section Leader, Occupational Hearing Protection, Occupational Health Problems Course, University of Colorado Health Sciences Center.

ACADEMIC CENTER PRESENTATIONS (SELECTED):

- 2001** Family Practice Grand Rounds, Salt Lake Regional Medical Center, "Barriers to Universal Health Care: The Enemy May Be Us"
- 1996** Department of Preventive Medicine and Biometrics, University of Colorado Health Sciences Center, "Newborn Screening in Colorado"
- 1995** Grand Rounds, Holy Cross Hospital, Salt Lake City, Utah, "Cardiovascular Disease and the Workplace"
- 1992** Department of Preventive Medicine and Biometrics, University of Colorado Health Sciences Center, "Building-related Illness: An Investigation"
- 1991** Second Opinion Conference, National Jewish Center, "An Outbreak Investigation: Sick Building Syndrome"
- 1986** Grand Rounds, Providence Hospital, Washington, D.C., "Prevention for the Elderly"

1986 Grand Rounds, Holy Cross Hospital, Salt Lake City, Utah, "Smoking Cessation"

CONTINUING PROFESSIONAL EDUCATION (SELECTED):

2003 "Typhoon Pongsona and Indoor Water Damage: Health Effects" - Guam Medical Society

2003 "Indoor Mold and Allergies: A Case Study" - Hawaii Society of Allergy, Asthma, and Immunology

2001 "Health Problems in Problem Buildings," "Health Problems in Moldy Buildings" - Continuing Education Conference, Rocky Mountain Center for Occupational and Environmental Health

2001 "Sick Buildings: Building-related Illnesses Caused by Mold and Other Culprits" - Utah Public Health Association Annual Conference

1999 "Medical Issues Associated with Problem Buildings" - Sick Building Litigation Conference, Mealy Publications, Inc.

1994-95 "Health Care Reform," "Newborn Screening," "Occupational and Environmental Reproductive Health Concerns" - Continuing Education Seminars, Colorado Public Health Nurses

1990-93 "Occupational and Environmental Medicine in Primary Care" - Kaiser Permanente Conference, University of Colorado Family Practice Refresher Course, Denver Osteopathic Foundation, St. Luke's Hospital Noon Conference, Rocky Mountain Poison Control Center

1990-93 "Building-related Health Problems" - Allergy Update, National Jewish Center, American Society of Heating, Refrigeration, and Air Conditioning Engineers/Rocky Mountain Chapter

1991 "Medical Surveillance for Health Care Workers" - Colorado Association of Hospital Employee Health Professionals

1989 "The Epidemiology of Nursing Home Infections" - Nevada Bureau of Regulatory Health

1988 "Food-borne Illness in Nevada" - Nevada Public Health Association

1985 "Preventive Medicine for the Elderly" - Intermountain West Long-term Care Gerontology Center

MEMBERSHIPS

American College of Occupational and Environmental Medicine
American Public Health Association

American Academy of Family Practice
Utah Medical Association

PUBLICATIONS

Brinton DA, Jarvis JQ, Harris DL. A small group experiment in medical education. *J Med Educ* 1984; 59:13.

Harris DL, Jarvis JQ. Family medicine and the predoctoral medical curriculum. *Marriage and Family Review* 1987; 10:91-107.

Jarvis JQ, Harris DL. Family medicine's place in predoctoral medical education: a survey of U.S. medical school deans and department chairmen. *J Family Practice* 1987; 24:515-519.

Jarvis JQ, Yodaiken RE. Risk assessment in the Occupational Safety and Health Administration. Mehlman MA, ed. *Advances in Modern Environmental Toxicology, Volume X: Safety Evaluation, Toxicology, Methods, Concepts, and Risk Assessment*. Princeton Scientific Publishing Company 1987; 127-134.

Jarvis JQ, Hess GH, Mihalek EF. The National Childhood Vaccine Injury Act: immunization guidelines. *The American Academy of Family Physicians* 1988.

Horsburgh CR, Jarvis JQ, McArthur T, Ignacio T, Stock P. Seroconversion to human immunodeficiency virus in prison inmates. *Am J Pub Health* 1990; 80:209-210.

Jarvis JQ. Occupational medicine. Monograph, Edition No. 137, Home Study Self-assessment Program. American Academy of Family Physicians October 1990.

Jarvis JQ, Semiatin S. Acquired immunodeficiency syndrome and human immunodeficiency virus infection in Nevada. *West J Med* 1991; 154:40-42.

Jarvis JQ, Hammond E, Meier R, Robinson CF. Cobalt cardiomyopathy: a report of two cases from mineral assay laboratories and a review of the literature. *J Occup Med* June 1992; 34(6):620-626.

Jarvis JQ. Occupational asthma: diagnosis and prognosis. *Sem Resp Med* 1993; 14(3):234-239.

Archer VE, Renzetti AD, Doggett RS, Jarvis JQ, Colby TV. Chronic diffuse interstitial fibrosis of the lung in uranium miners. *J Occup Med* 1998; 40(5):460-474.

Jarvis JQ, Morey P. Allergic respiratory disease and extraordinary microbial remediation in a building in a subtropical climate. *Applied Occupational and Environmental Hygiene* 2001; 16(3):380-388.

INVITED PRESENTATIONS

Jarvis JQ: A small group experiment in medical education. North American Primary Care Research Group, Banff, Alberta, Canada, April 1983.

Jarvis JQ: A small group experiment in medical education. II Jornadas Internacionales de Medicina Familiar de las Americas, Espana y Portugal, Panama, August 1984.

Jarvis JQ, Wood MQ, Wood S: Medical screening in the workplace. Symposium on Medical Ethics, Washington State University, Pullman, Washington, September 1985.

Harris DL, Jarvis JQ: Family medicine in medical education. Society of Teachers of Family Medicine Western Regional Meeting, Reno, Nevada, September 1985.

Jarvis JQ, Harris DL: Family medicine in medical education. Society of Teachers of Family Medicine Annual Spring Conference, New Orleans, Louisiana, April 1987.

Schultz D, Jarvis JQ: Community-oriented primary care focused on the workplace: developing an occupational medicine component in the family practice center. Society of Teachers of Family Medicine Annual Spring Conference, New Orleans, Louisiana, April 1987.

Bernheimer E, Jarvis JQ: AIDS knowledge in students grade 2 - 6. American Public Health Association Annual Meeting, Poster Session, Boston, Massachusetts, November 1988.

Jarvis JQ: Institutionalizing injury control. Washoe Safe Kids Coalition, September 1989.

Jarvis JQ: The epidemiology of AIDS and HIV infection in Nevada. University of Nevada School of Medicine, September 1989.

Jarvis JQ: Public health and politics in Nevada. Keynote Address, Nevada Public Health Association, October 1989.

Jarvis JQ: National conference on suicide and the media. Moderator, Association of State and Territorial Health Officials, Newark, New Jersey, November 1989.

Meehan PJ, O'Carroll PW, Jarvis JQ: Suicide in Nevada. American Public Health Association Annual Meeting, Injury Control Session, New York, New York, October 1990.

Jarvis JQ: Public health and health care reform. Colorado Public Health Association, June 1991.

Jarvis JQ: Environmental contamination from a uranium mill: A cancer cluster investigation. Agency for Toxic Substances and Disease Registry Clinical Environmental Medicine Conference, Atlanta, Georgia, November 1991.

- Jarvis JQ: Sick building syndrome. Association of Hospital Employee Health Professionals Annual National Conference, Denver, Colorado, October 1992.
- Jarvis JQ: Heart disease in the workplace. Rocky Mountain Academy of Occupational and Environmental Medicine 28th Annual Meeting, Denver, Colorado, January 1993.
- Jarvis JQ: Sick building syndrome and building-related illness in a mold-contaminated courthouse: A clinical and epidemiologic investigation. 10th Annual Utah Safety and Industrial Hygiene Conference, Salt Lake City, Utah, February 1993.
- Jarvis JQ: Managing the work-injured patient. Primary Care Conference, University of Nevada School of Medicine, May 1993.
- Jarvis JQ: Sick building syndrome and building-related illness in a mold-contaminated courthouse: a clinical and epidemiologic investigation. American Industrial Hygiene Association Conference, New Orleans, Louisiana, May 1993.
- Jarvis JQ: Indoor air and human health. Nevada State Medical Association Scientific Assembly, Newport Beach, California, April 1996.
- Jarvis JQ: Managed care, now and in the aftermath. Texgene Annual Meeting, Austin, Texas, June 1996.
- Jarvis JQ, Rose CS, Morey P: Allergic respiratory disease and extraordinary microbial remediation in a building in a subtropical climate. American Industrial Hygiene Association Conference, Dallas, Texas, May 1997.
- Jarvis JQ: Removing barriers to universal health care. Keynote Speech, Utah Public Health Association Annual Conference, Park City, Utah, May 2001.
- Jarvis JQ: Epidemiology and clinical work up for populations in moldy buildings. Controversial issues in mold-related human health. First Annual National Symposium on the Impact of Mold on Health and Indoor Air Quality, Atlanta, Georgia, October 2001.
- Jarvis JQ: Infrastructure and organizational capacity required for effective health department leadership. American Public Health Association 129th Annual Meeting, Atlanta, Georgia, October 2001.
- Jarvis JQ: The status of health care reform in Utah. Utah Public Health Association Annual Conference, Park City, Utah, April 2002.
- Jarvis JQ: Indoor mold-related health effects. U.S. General Services Administration's Public Building Managers National Conference, New Orleans, Louisiana, June 2002.
- Jarvis JQ: The health effects of indoor mold exposure. American Conference of Hazardous Materials Managers, Louisville, Kentucky, September 2002.

Jarvis JQ: Disease causation and mold exposure. Second Annual National Symposium on the Impact of Mold on Health and Indoor Air Quality, Atlanta, Georgia, October 2002.

Jarvis JQ: The health effects of indoor mold exposure. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Annual Conference, Chicago, Illinois, January 2003.

Jarvis JQ: The health effects of indoor mold exposure. CAI Mold Seminar, Honolulu, Hawaii, February 2003.

Jarvis JQ: Observational epidemiology and indoor mold exposure. Third Annual National Symposium on Indoor Air Quality, Atlanta, Georgia, October 2003.

Jarvis JQ: Observational epidemiology and indoor mold exposure. American Public Health Association 131st Annual Meeting, San Francisco, California, November 2003.

Jarvis JQ: The Health Perspective – Medical issues related to indoor mold. Mold and moisture. Control in commercial buildings. Tennessee Valley Authority Conference, Nashville, Tennessee, December 2003.

GRANTS

Principal Investigator, "Micronuclei: Potential as a Biological Dosimeter for Low-Level Radiation Exposure," Department of Family and Community Medicine Faculty Research Award, University of Utah School of Medicine, 1986.

Principal Investigator, "Behavioral Risk Factor Surveillance," Centers for Disease Control and Nevada Division of Health, 1989.

Author, Grant for Graduate Training in Family Medicine, Bureau of Health Professions, Health Resources and Services Administration (HRSA), Las Vegas, Nevada, 1990.

Author, Grant for Graduate Training in Family Medicine, Bureau of Health Professions, HRSA, Reno, NV, 1991.

Principle Investigator, "Regional Genetic Services Continuing Grant," Bureau of Maternal Child Health, USPHS and Colorado Department of Public Health and Environment, 1994-96.

Richard S. Blume, M.D., M.P.H., F.A.C.P.M., Sandler Occupational Medicine Associates.

Curriculum Vitae

RICHARD S. BLUME, M.D., M.P.H., F.A.C.P.M.

EDUCATION:

M.P.H. University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School and Rutgers, the State University of New Jersey Joint Graduate Program in Public Health, Piscataway, New Jersey, 1991

M.D. New York Medical College, Valhalla, New York, 1984

B.S. Bioengineering, Columbia University School of Engineering and Applied Science, New York, New York, 1980

POSTGRADUATE TRAINING:

University of Medicine and Dentistry of New Jersey - Robert Wood Johnson Medical School, Department of Environmental and Community Medicine, Piscataway, New Jersey. Occupational Medicine Residency, 1989 - 1991

Walter Reed Army Medical Center, Washington, D.C. Internal Medicine Internship, 1985

CERTIFICATION AND LICENSURE:

Diplomate, American Board of Preventive Medicine – Board certified
Diplomate, American Board of Medical Examiners
New York, New Jersey State medical licensure (active)

CLINICAL EXPERIENCE:

United States Army Medical Corps, General Medical Officer:
U.S. Army Health Clinic, Fort Hamilton, New York, 1988-1989
U.S. Army Health Clinic, Bamberg, West Germany, 1985-1988

DISTINCTIONS:

Tau Beta Pi National Engineering Honor Society
Alpha Omega National Medical Honor Society
Phi Lambda Upsilon Honorary Chemical Society
New York State Regents College Scholarship
United States Army Health Professions Medical Scholarship
United States Army Commendation Medal for Meritorious Service
United States Army Overseas, Service Ribbons; Honorable Discharge, 1989

Who's Who In America, Millennium Edition

PROFESSIONAL MEMBERSHIP:

Fellow, American College of Preventive Medicine

Member, American College of Occupational and Environmental Medicine

ADDITIONAL EXPERIENCE/TRAINING:

1991 - present **Consultant, preventive medicine/occupational and environmental medicine**
Sandler Occupational Medicine Associates

1991 **Consultant on medical surveillance**
Merck & Co., Inc.

1990 - 1991 **Chief resident in occupational medicine**

1990 - 1991 **Clinical occupational medicine physician**
Exxon Chemical Company
AT & T Bell Laboratories
Merck & Company, Inc.

1988 - 1989 **Occupational health section physician**
U.S. Army Health Clinic

1986 - 1988 **Clinic Assistant Officer in Charge**
U.S. Army Health Clinic

PUBLICATIONS:

Kipen H., Blume R., Hutt D. Asthma Experience in an Occupational and Environmental Medicine Clinic: Low-Dose Reactive Airways Dysfunction Syndrome. *Journal of Occupational Medicine*, 1994;36:1133-1137.

Sandler H., Blume R. Reflex Sympathetic Dystrophy: Misunderstood and Overdiagnosed. *Occupational Hazards*. May 1994.

Blume R., Occupational Injury and Malignancy: Angiosarcoma Case Reports and Literature Review. *Journal of Occupational Medicine*. 1994;36:478 (Abstract).

Blume R., Sandler H. Evaluation of the OSHA Approach and Cited Literature Critique: Draft Proposed Ergonomic Protection Standard. *National Coalition on Ergonomics*. January, 1996

Sandler H., Blume R. Occupational Asthma: Out of Breath in the Workplace. *Occupational Hazards*. April 1996.

Blume R., Hyperactivity, Lead Exposure, and Reverse Causation: What the Science Shows. *Lead Perspectives*. March/April 1997.

Sandler H., Blume R., Analysis of the Scientific Approach in Assessing Epidemiological Evidence for the Relationship Between Work and Musculoskeletal Disorders. Work-Related Musculoskeletal Disorders, National Research Council, National Academy Press, 1999.

PRESENTATIONS:

"Microbial Exposure and Health Effects"
Sterling Education Services, Melville, NY, October 28, 2003

"Legionnaire's Disease"
Deer Park Union Free School District, January 16, 2001.

"Flour Dust TLV and Bakers' Asthma – The Scientific Basis"
American Bakers Association, Safety Committee Meeting, Denver, PA, October 6, 2000.

"Evaluation of Lead in Drinking Water"
United States Postal Service, Dominick V. Daniels Facility, Kearny, NJ, June 14, 2000.

"Multiple Chemical Sensitivities"
Fifth Annual Vermont Workers' Compensation Adjuster Conference, September 10, 1999.

Invitee, National Academy of Sciences, Workshop on Work-Related Musculoskeletal Injuries: Examining The Research Base, Washington, D.C., August 21-22, 1998.

"New Techniques in Fitting the Worker to the Job: State of the Art in Medical Standards"
New Jersey State Safety Council, 1997 Mid-Atlantic Region Safety & Health Expo, Atlantic City; April 23, 1997.

"Occupational Injury and Malignancy: Angiosarcoma Case Reports and Literature Review"
American College of Occupational and Environmental Medicine, 1994, American Occupational Health Conference, Chicago; April 21, 1994.

"Workers' Compensation Case Management and Reflex Sympathetic Dystrophy"
American College of Occupational and Environmental Medicine, State-of-the-art Conference, New York, NY; October 29, 1992.

"Hazard Surveillance for Occupational Lead Exposure in New Jersey: A Model for a Comprehensive State Hazard Surveillance System" Directors' Review, Rutgers Graduate Program in Public Health, Piscataway, NJ; May 20, 1991.

"Neurologic Illness Following Exposures at an Abandoned Gas Plant"
American Occupational Health Conference, Frontiers in Occupational Medicine Research, San Francisco, CA; May 3, 1991.

"Occupational Asthma Diagnosis and RADS"
Comprehensive Course in Occupational Medicine, Piscataway, NJ; April 10, 1991.

"Risk Assessment for a Municipal Waste Incinerator"
Rutgers Graduate Program in Public Health, Piscataway, NJ; May 10, 1991.

"Laboratory Animal Allergy" Toxicology Seminar,
Rutgers Graduate Program in Toxicology, Piscataway, NJ; March 7, 1990.

Curriculum Vitae

BOBBY J. GUNTER, PH.D., CIH

EDUCATION

- Ph.D. Preventive Medicine and Public Health, 1967
University of Oklahoma,
Oklahoma City, OK
- M.S. Sanitary Science Public Health, 1964
University of Oklahoma
Norman, OK
- B.S. Natural Science, 1963
Southeastern State University
Durant, OK

CERTIFICATIONS

Board Certified in Industrial Hygiene (#1083)
Fellow AIHA

EMPLOYMENT

- Private Consultant, Occupational and Environmental Health, 1991-Present
- Regional Director for Occupational Health, The Hartford Steamboiler Insurance Company, Atlanta, Georgia 1991
- Consultant, Environmental and Occupational Health Westinghouse Environmental and Geotechnical, Inc., 1989-1990.
- Scientist, Commissioned Corps U.S. Public Health Service, Commissioned Officer, Captain (06), Ret., Denver, Colorado, Atlanta, Georgia, and Cincinnati, Ohio, 1967-1989.
- Supervisory Occupational Health Consultant, National Institute for Occupational Safety and Health (NIOSH), USPHS, Denver, Colorado 1987-1989.
- Regional Industrial Hygienist, NIOSH, USPHS, Denver, Colorado 1971-1987.

- Assistant Director for Research and Requirement Analysis, Bureau of Occupational Safety and Health (BOSH), Cincinnati, Ohio 1969-1970.
- Occupational Health Consultant, DHEW/Region II-New York, NY 1968-1970.
- Special Assistant to Chief, BOSH/HSMHA/DHEW, Cincinnati, Ohio 1968-1969.
- Occupational Health Consultant, DHEW/Region III, Charlottesville, Virginia 1961-1968.
- Industrial Hygienist, Division of Technical Services, BOSH/ HSMHA/DHEW, Cincinnati, Ohio 1967-1968.
- Research Assistant, Veteran's Administration Hospital and University of Oklahoma Medical Center, Oklahoma City, Oklahoma 1965-1967.
- Chief Chemist, City of Norman, Oklahoma 1964-1967

PROFESSIONAL TESTIMONY

- Professional Witness for OSHA Helena, Montana-Lead Toxicology and Lead Plant Evaluations.
- Denver, Colorado-Ammonia Toxicology and Hazards of Ammonia Explosions.
- Professional Witness-U.S. Department of Justice. Largest mercury hazardous waste site—1999.
- Denver, Colorado – Metal and Solvent Hazards in the manufacturing of steel.
- Testified before the U.S. Senate on Health and Safety Problems in Small Industry (1977-1978).
- Professional witness for other clients and will provide additional information upon request.

TEACHING (LECTURES)

40-hour Hazardous Waste Operations OSHA 1910.120
 8-hour update for OSHA 1910.120
 OSHA 1910.1200 Hazard Communication Training
 OSHA 1910.1450 Laboratory Health and Safety
 Toxicology for Scientist and Engineers
 Presented over 200 Professional Papers concerning Occupational Health
 Environmental Health and Industrial Hygiene.

CLIENTS (TAUGHT)

U.S. Environmental Protection Agency
 United States Public Health Service (USPHS)

Agency for Toxic Substance Disease Registry (ATSDR)

AA

Clayton Environmental

Willmer Engineering

Tony Williams Trucking

Delta Environmental

A.T. Kearney

U.S. Department of Transportation

GSA

SONOCO Engraph

Georgia Environmental Protection Division

United States Department of Parks NPS

Wrigley's Company

INS Investigations

Georgia Arson Investigators

Michigan Arson Investigators

Tennessee Arson Investigators

Federal Aviation Agency

United States Federal Park Service

The Crawford Company

PathCon Laboratory

FACULTY APPOINTMENTS

Emory University

Rollins School of Public Health

Adjunct Professor 1989-Present

Course Director for Industrial Hygiene 1989-1998

Colorado State University, Fort Collins, Colorado 1973-Present

Oklahoma University Health Science Center, Oklahoma City, Oklahoma

CURRENT PROJECTS

Development of Site Specific Health and Safety Plans for OSHA 1910.120 activities.

- Health and Safety Officer for class A to D sites OSHA 1910.120
- Factory OSHA audits and compliance monitoring with reports.
- Professional witness for a variety of legal cases.
- Training of all OSHA 1910.120 activities.

PUBLICATIONS

Gunter BJ, Solomon LA, Hinshaw LB, Nan CA. 1966. The Effect of Endotoxin Shock on Plasma Zinc Concentrations, *The Physiologist* 9:195.

Hinshaw LB, Solomon LA, Gunter BJ. 1967. Mechanisms of Endotoxin Shock, Western Society for Clinical Research, Carmel College, Monterey, CA.

Hinshaw LB, Solomon LA, Erdos EG, Rains DA, Gunter BJ. 1967. Effects of Acetylsalicylic Acid on the Canine Response to Endotoxin, *The Journal of Pharmacology and Experimental Therapeutics* 3:157.

Stumpf J, Bleh K, Buchan R, Gunter BJ. 1986. Characterization of Particulate Aerosol-Size Distribution and Formaldehyde Content, *AIHA Journal* 47:725-730.

Downey E, Buchan R, Blehm K, Gunter BJ. 1983. A Comparison of Two Ozone Sampling Methods, *AIHA Journal* 44:333.

Campbell D, Lockey J, Petajan J, Gunter B, Rom W. 1986. Health Effects Among Refrigeration Repair Workers Exposed to Fluorocarbons. *British Journal of Industrial Medicine* 43:107.

Wingfield W, Ruby D, Buchan R, Gunter B. 1981. Waste Anaesthetic Gas Exposures to Veterinarians and Animal Technicians. *JAVMA*. 178:399.

Occupational Disease (The Silent Enemy), Government Publications 1968

Criteria and Recommended Standard for Occupational Exposures to Asbestos, 1971.

Criteria and Recommended Standard for Occupational Exposures to Carbon Monoxide, 1971.

Primary Author on 14 Health and Safety Guides, these books are about 100 pages in length.

Published 375 Health Hazard Evaluations which included Industrial Hygiene, engineering, medical and biological monitoring of a large variety of industrial work environments. A list of individual copies can be supplied upon request.

CHAPTERS IN BOOKS

ACGIH Occupational Hazards to Health Care Workers, (Gunter, BJ pp 187-191.1986).

Biological Monitoring of Exposure to Chemical Organic Compounds

Xylene Exposure in a Histology Laboratory Investigated by Environmental and Biological Monitoring, Lowery L, Thoburn TW, Phipps FC, Gunter BJ, Sollenberg J. pp143-153, John Wiley and Sons, Inc. 1987.

MICROBIAL EXPERIENCE

Conducted several large microbial investigations in large hospitals using 4 and 7 plate protocols.

Conducted investigations in industrial settings for microbes in cutting fluids using 4 plate protocols.

Conducted investigations in elementary and secondary schools for microbial contamination.

Conducted Legionella evaluations in large industries.

Conducted 2-plate protocol investigation for fungal and other microbial contamination on a large military base.

Conduct investigations involving microbial, chemical and physical hazards at private and government facilities.

My areas of expertise are in recognizing, evaluating, and controlling chemical, physical and biological hazards in industrial settings.