CURRICULUM VITA

Joseph H. Guth PhD, Certified Industrial Hygienist

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EDUCATIONAL BACKGROUND

University of California at Los Angeles, Chemistry major, Molecular Genetics minor, 1960-64

U.S. Army Chemical School, Certificate, Chemical Laboratory Specialist (Chemical, Biological and Radiological Warfare Laboratory and Field Training), 1964

U. S. Department of Agriculture Workshop on "Analytical Techniques in Plant, Soil and Water Testing", University of California, Davis, 1969

Veterans Administration Medical Center Hospital, General Clinical Laboratory Technician Training Course, Palo Alto, CA, 1970 - 72

University of California, Berkeley - **B.S. Chemistry, 1970**, Chemistry Major, Biochemistry Minor

University of California, Berkeley - **Ph.D. Biophysics and Biochemistry, 1975**, Research in Biological Membrane Functions and Roles of Intracellular Calcium in Aging and Cancer

University of Wisconsin, Madison, WI - Joint Postdoctoral Fellowship in Endocrinology/Enzymology, 1975-6, Research in Endocrinology, Cellular Aging and Cancer

American Board of Industrial Hygiene, Certified Industrial Hygienist (in Comprehensive Practice) December, 1987 – Present Certification No. 3755

NIOSH/USPHS Course and Workshop 582 in "Asbestos Evaluation", University of Texas, Houston, TX, 1979

University of North Carolina School of Public Health, Advanced Industrial Hygiene Course, 1980

University of North Carolina School of Public Health, Personal Sampling Course, 1980

University of North Carolina School of Public Health, Environmental Exposure Sampling and Statistics Course, 1980

U.S. EPA Course on Advanced Asbestos and Mineral Identification Methods (taught by W. McCrone), Atlanta, GA, 1980

Georgia Institute of Technology, Asbestos Glove Bag Course, 1983

Georgia Institute of Technology, Asbestos Abatement Project Cost Estimation Course, 1984

American Board of Industrial Hygiene, Fundamentals of Industrial Hygiene, May, 1987

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

University of Cincinnati, Comprehensive Review for Industrial Hygiene Professionals, May, 1987

MAIC / University of Illinois, "EPA-Accredited Certification Course for Building Asbestos Inspection", January, 1988; Refresher Course: Medical College of Virginia, January, 1989

MAIC/University of Illinois, "EPA-Accredited Certification Course for Management Planning", January, 1988; Refresher Course: Medical College of Virginia, February, 1989

Medical College of Virginia, School of Preventive Medicine, "EPA-Accredited Certification Course for Asbestos Contract Supervisors & Project Designers", February, 1988; Refresher Course: Medical College of Virginia, February, 1989

Asbestos Consulting and Training Systems, "Asbestos Contractor/Supervisor Course", June, 1996

A. H. Reppert & Associates, Inc., "Lead Inspector/Risk Assessor Initial Course", January, 1997

Asbestos Consulting and Training Systems, "AHERA Building Asbestos Inspector Course", April, 1998

Asbestos Consulting and Training Systems, "AHERA Building Asbestos Management Planner Course", April, 1998

Niton Corporation, "Training Course for the Niton XRF Spectrum Analyzer" for Lead Paint Detection (Certified in Radiation Safety and Monitoring, Measurement Technology, and Machine Maintenance), September, 1999

American Industrial Hygiene Association/American Conference of Industrial Governmental Hygienists, Professional Development Course No. 710, "Practical Tools for Modeling of Occupational Exposures", Atlanta, GA, May, 2004

American Industrial Hygiene Association/Tidewater Professional Development Conference (Influenza Pandemics, Exposure Assessments, Cancer Cluster Investigations), Norfolk, VA, 2006

American Industrial Hygiene Association, Professional Development Course "Exposure Assessment Strategies and Statistics", (online) 2007- 8

American Industrial Hygiene Association, Professional Development Course, "Anticipation, Recognition, Evaluation and Control of Welding Health Hazards",
Norfolk, VA, November, 2010

American Industrial Hygiene Association, Professional Development Course,
"Whole-Body Vibration - Implementing Best Practice For Managing Risk:
Assessment Principles, Standards, Regulatory Guidelines, Exposure
Sampling, And Practical Considerations", St. Augustine, FL, 2011

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

American Industrial Hygiene Association, Professional Development Course, “Calculation Techniques For Industrial / Occupational Hygiene And Their Applications”, St. Augustine, FL, 2011

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

WORK EXPERIENCE

President/Principle, Scientific and Forensic Services, Inc., Independent Expert Witness and Consultation, Asbestos and General Toxic Torts and Product Liability Litigation Support, General Forensic Science Litigation Support, Personal Injury and Product Liability Litigation Support, 1997 - Present, Norfolk, VA and Delray Beach, FL

President/Laboratory Director/Owner, Interscience Research, Inc., Asbestos Consultation, Asbestos Sampling, Analysis and Research, Asbestos Project Design, Specification Writing and Abatement Supervision, Asbestos Exposure Risk Assessments, Expert Witness and Consultations, Industrial Hygiene, General Analytical Chemistry, Contract Research, Routine/Non-routine Testing and Quality Control, Legal/Forensic Studies, Environmental Audits, Water Testing, Environmental Microbiology, PCB Testing, Hazardous Waste Testing, Indoor Air Quality Evaluations, Metallurgy, Materials Science, Compressed Gas Testing, Compressed Air Purity Testing, Petroleum Specification Testing, General Product Specification Testing, Polymer Testing, Abrasive Blasting Media Testing, Food Testing, Cosmetics Research, FDA Compliance Testing, EPA Compliance Testing, 1978-1997, Norfolk, VA

Assistant Professor of Chemical Science, Department of Chemical Sciences, Old Dominion University, Norfolk, VA, 1976-79, Teaching and Research (Cell Aging and Carcinogenesis)

Chemist/Owner - Interscience Research Group, Los Angeles, CA 1966-69; Palo Alto, CA, 1970-72, General Analytical and Industrial Chemistry

Research Chemist, U.S. Army Chemical Warfare Center, Edgewood Arsenal, MD, 1964-65, Quantum Chemistry of Toxicological Agents/Antidotes (Calculation of Molecular Properties for Prediction of Antidote Structure and Activities); Research in Sampling and Decontamination Procedures for Chemical, Biological and Radiological Warfare Applications

Laboratory Technician, Department of Biological Chemistry, University of California, Los Angeles, 1961-63, Biochemical and Cancer Research; Mechanisms of Carcinogenesis

Laboratory Assistant, Department of Infectious Diseases, University of California, Los Angeles, 1960-61, Biomedical and Various Cancer Research Projects

SOCIETIES

(Current and Past Memberships)

American Chemical Society

Association of Official Analytical Chemists

American Society for Testing and Materials

Diplomate, American Board of Industrial Hygiene

Member and Diplomate, Academy of Industrial Hygiene

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

American Industrial Hygiene Association

National Asbestos Council (Charter Member)

Environmental Information Association

Sigma XI

American Association for the Advancement of Science

Virginia Academy of Science

Biophysical Society

American Association of University Professors

Tissue Culture Association

International Association of Arson Investigators

Mid-Atlantic Association of Forensic Scientists

Society of Forensic Toxicologists

American Textile Chemists & Colorists Society

American Society for Microbiology

HONORS

Pioneer in Science Award (Future Engineers of America), 1959

Scholar designate of the Committee for Advanced Science Training (National Science Foundation), 1960

President, Foundation for the Study of Aging, New York, 1978-1988

National Asbestos Council (member of the Sampling and Analysis, Contract Specification and Membership Committees, 1984 - 1992; Founder and Chairman of the Asbestos Surface Contamination Evaluation Taskforce, 1988-1992)

Peer Reviewer, National Institute for Occupational Safety & Health (Asbestos Control Technology Protocol Assessment), 1985-1988

Asbestos Technology & Cost Recovery Expert Witness, (Attorney General's Office, Commonwealth of Virginia), 1985

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

Asbestos Technology & Cost Recovery Expert Witness, (Attorney General's Office, State of Massachusetts), 1985

Consultant and Forensic Science Expert Witness, (Commonwealth of Virginia Supreme Court), 1986

Consultant/Course Instructor, Virginia Department of Labor and Industry, Virginia Occupational Safety and Health Program for Asbestos (Evaluation of Long-Term Exposure Risk, Detection Survey Techniques, Methods of Sampling and Analysis for Removal Project Monitoring and Clearance), 1986

Peer Reviewer, U.S. EPA (Asbestos Control Technologies & Advisor for Future EPA Research Projects), 1987-1988

Asbestos Consultant for Norfolk Public Schools (Norfolk, VA), 1983 - 1987, Established Original NPS School Asbestos Management Program, Surveyed all Schools, Provided Management Consultation, Bid Documents for Abatement and Fully Monitored all Asbestos Abatement work, Assisted in Abatement Contractor Prequalification, Provided Laboratory Services, Field Inspections and Clearance, and Prepared NPS Asbestos Management Plans under AHERA Regulations.

Asbestos Consultant & Legal Expert for Norfolk Public Schools (Norfolk, VA), 1986-1987, Worked with School Attorneys in Preparing the NPS Cost Recovery Litigation Documentation

Asbestos Consultant & Legal Expert for School District of Philadelphia (Philadelphia, PA) in their Asbestos Programs and Resulting Litigation Efforts, 1986

Asbestos Consultant & Legal Expert for Wesley Theological Seminary of the United Methodist Church in Asbestos Litigation, 1987

Contributor to "Asbestos in Public and Commercial Buildings: A Literature Review and Synthesis of Current Knowledge", Health Effects Institute -- Asbestos Research, 1991

Peer Reviewer, National Science Foundation, 1999

SPECIAL PROJECTS, TRAINING SEMINARS, AND PROFESSIONAL PRESENTATIONS

Indoor Air Quality Science, Instructor and Creator of the first two online education/training courses in the science, engineering, evaluation and abatement of indoor air quality problems for professionals, 1999 - present

Asbestos Training Courses, Developed, sponsored and instructed the *first* U.S. seminar/training courses on Asbestos Removal Procedures for Abatement Contractors and on Specification Writing for Architects in conjunction with the University of North

Carolina, School of Public Health-Chapel Hill and Commonwealth of Virginia Department of public Health, 1980 (Williamsburg, VA)

Instructor, Asbestos Abatement Worker Training Course, repeatedly presented to hundreds of workers, 1980-1988

Instructor, Asbestos Abatement Air Sampling Training Course, repeatedly presented to hundreds of workers, 1980-1988

Instructor, Asbestos Glovebag and Specialized Removal Procedures Workshop, repeatedly presented to hundreds of workers, 1980-1989

Instructor, Asbestos Hazards and Abatement Procedures in Schools, presented to Administration and Teachers' union, School District of Philadelphia. PA 1984

Instructor, Supervisory Asbestos Removal Training Course, presented to hundreds of workers, 1986-1988

Instructor, Technical Aspects of Asbestos Personal Injury Litigation presented at 1st Annual INTERSCIENCE RESEARCH, INC. Forensic Sciences Seminar. 1985

Instructor, Presented two, one-day seminars on Asbestos Operations and Maintenance Programs to attendees of the Building and Grounds Maintenance Magazine Special Seminar Series (Philadelphia, PA, and Washington, DC), 1985

Consultant, on Asbestos Assessment and Abatement Practices, U.S. Fish & Wildlife, Patuxent River, MD, 1985

Instructor, Presented two, half-day seminars to Arlington County, VA to government employees on Asbestos Hazards and Management, 1986

PAST AND CURRENT ACCREDITATIONS & CERTIFICATIONS

Certified Industrial Hygienist (Comprehensive Practice), American Board of Industrial Hygiene Diplomate, Certificate No. 3755 (Conferred December 9, 1987 -- Present)

Licensed Asbestos Inspector, Virginia Department of Professional and Occupational Regulation, 1988-95; 1997-9

Licensed Asbestos Management Planner, Virginia Department of Professional and Occupational Regulation, 1988-95; 1997-2000

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

Licensed Lead Inspector/Risk Assessor, Virginia Department of Professional and Occupational Regulation, 1998-2000

Lead Safe Work Practices Seminar (approved for ABIH Certification Maintenance), Atrium Environmental Health & Safety Services LLC and the National Paint & Coatings Association, June 28, 2006

(Updated December 5, 2011)

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

PUBLICATION LIST

Guth, Joseph H., "Calcium Permeability Studies of Cultured Human Cells: Relation to Cell Proliferation and Aging", Ph.D. Dissertation, University of California, Berkeley, (1975), pp 1-200

Guth, Joseph H., "The Mechanism of Asbestos-Induced Carcinogenesis: Calcium and Plasma Membrane Integrity", Paper Presented to the Virginia Academy of Sciences 59th Meeting, Norfolk VA, May 14, 1981

Guth, Joseph H., "The Mechanism of Asbestos-Induced Carcinogenesis: Calcium and Plasma Membrane Integrity", (Abstract), Virginia Journal of Science, 32, 135 (1981)

Guth, Joseph H., "Effective Programming in Identification and Evaluation of Hazardous Exposures to Asbestos in Public Buildings", (Published by Interscience Research, Inc., 1984)

Guth, Joseph H., "Effective Programming in Identification and Evaluation of Hazardous Exposures to Asbestos in Public Buildings", Paper Presented to the Virginia Safety Association 51st Annual Safety Conference, May 8, 1985

Guth, Joseph H., "A New Ultra-Cleaning Procedure for Asbestos Abatement Projects", Paper Presented at the Central Virginia Safety Association Annual Meeting, March 13, 1986

Guth, Joseph H., "Asbestos in Schools and Buildings: What You Need to Know", (Published by Interscience Research, Inc., May, 1986)

Guth, Joseph H., "Aggressive Sampling Experiences and Surface Monitoring", Paper Presented to the US Environmental Protection Agency, Cincinnati, OH, August 21, 1986, to the Peer Review Panel on Assessment of Asbestos Removal Under Latest Guidance Document Conditions

Guth, Joseph H., “A Guide to Surface Sampling Methodology", Revision 2, Paper Presented at the National Asbestos Council (NAC) Technical Conference, September 19, 1988

Guth, Joseph H., "Density Gradient Separation of Chrysotile Asbestos", NAC Journal, 49-50 (Winter 1988-9)

Guth, Joseph H., "A Guide to Surface Sample Analysis Methodology", Paper Presented at the NAC 6th Annual Conference, March 29, 1989

Guth, Joseph H., "Interpretation of Surface Asbestos Contamination Data: The Closed Finite System Model", Paper Presented at the NAC 6th Annual Conference, March 29, 1989

Guth, Joseph H., "Complete Building Asbestos Evaluation: New Techniques of Detection", Environmental Contractor, pp 66-78 (August, 1990)

Guth, Joseph H., "Outline for the Analysis of Surface Samples by Scanning Electron Microscopy", Paper Presented at the NAC 7th Annual Conference, February 19, 1990

Guth, Joseph H., "Asbestos Exposure Risk Assessment Through Surface Dust Evaluation", Paper Presented to the National Asbestos Council 6th Annual Conference, September 10, 1990

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

Guth, Joseph H., "Interpretation of Surface Asbestos Contamination Data: The Closed Finite System Model", Update No. 1, Paper Presented at the NAC 6th Annual Conference, September 10, 1990

Guth, Joseph H., "A Compilation of Surface Evaluation References", Published by Interscience Research, Inc., January 29, 1991

Guth, Joseph H., "Surface Evaluation Literature Reference List", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "A Guide to Surface Sampling Methodology", revision 2, in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "A Guide to Surface Sample Analysis Methodology", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "Density Gradient Separation of Chrysotile Asbestos", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "An Outline for the Analysis of Surface Dust Samples by Scanning Electron Microscopy", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "Asbestos Exposure Risk Assessment Through Surface Dust Evaluation", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "Interpretation of Surface Asbestos Contamination Data – The Closed Finite System Model", in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "Interpretation of Surface Asbestos Contamination Data – The Closed Finite System Model", Update No. 1, in *Settled Dust Analysis: Asbestos and Other Particulates*, Published by Georgia Tech Research Institute, Atlanta, GA (1991)

Guth, Joseph H., "Personal Profiling By DNA Back-Calculation", Opinion-Editorial Column, Virginian Pilot, Norfolk, VA, January, 2000

Guth, Joseph H., "Asbestos Awareness and Hazard Responses by School Employees", Safe Schools Training Program Products, Scenario Learning Inc., 1776 Mentor Avenue, Cincinnati, OH, published in Sept, 2004. Computerized training program and associated documentation.

Guth, Joseph H., "Mold Exposures Need Better Medical Responses", LNC Resource, Vol. 1, No. 9, Sept. 2004, p. 1-19. (Printed publication. Article also available on internet at http://www.lncresource.com/story.asp?ContentID=10156&SID=4826)

CURRICULUM VITA

Joseph H. Guth, PH.D., CIH

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Guth, Joseph H. and others, multiple contributing co-author to Wikipedia, the online encyclopedia on the subject of asbestos. http://en.wikipedia.org/wiki/Asbestos, 2006

Note: Dr. Guth has published or presented papers and articles in other fields of science that are not listed here.

(Updated May 22, 2009)

His websites may be visited for added information and some online publications at:

http:// www.sci-expert.com and **http://iaq.htmlplanet.com**

Joseph H. Guth, Ph.D., CIH

ASBESTOS PROJECT & EXPOSURE ASSESSMENT BACKGROUND

EDUCATION, SPECIALIZED TRAINING, RELEVANT EMPLOYMENT & LEGAL CASEWORK

EDUCATION AND SPECIALIZED TRAINING

1. University of California, Los Angeles (1960-4). Chemistry and Biochemistry Courses including advanced inorganic chemistry, analytical chemistry, instrumental analysis, physical chemistry, introductory and advanced biochemistry and cell biology courses (lectures and laboratory coursework).

2. U.S. Army Chemical School, Ft. McClellan, AL (1964). Fully educated and trained as a Chemical, Biological and Radiological Warfare Specialist. Included lecture, laboratory and field training in all aspects of sampling, detection, analysis and interpretation of chemical, biological and nuclear weapons handling, detonation, field usage, contamination evaluation and control, and decontamination procedures. Also included full toxicological and health effects of toxic chemical agents, biological and infectious agents, vector usage, and radiation exposures.

3. University of California, Berkeley, CA (1968-1975). Departments of Physics, Chemistry, Biochemistry, Physiology-Anatomy and Biophysics. Undergraduate and Graduate school research courses on toxicological effects and biophysical/biochemical mechanisms of various carcinogenic substances, including asbestos fibers. Utilized various carcinogens, including asbestos fibers in defining the role of cellular calcium management in carcinogenesis and cell division cycle control in graduate research leading to my Ph.D. Received B.S. in Chemistry and Ph.D. in Biophysics.

RELEVANT EMPLOYMENT HISTORY

1. University of California, Los Angeles, CA, Departments of Zoology and Biological Chemistry (1960-2). Worked part time as a Laboratory Assistant and Laboratory Technician in various biochemical research projects involving carcinogenesis.

2. Interscience Research, Inc., Norfolk, VA (1980 - 97). Laboratory Director. As Laboratory Director of a large and regionally-established environmental testing and industrial hygiene laboratory, Dr. Guth was responsible for selecting analytical methodology, setting up and validating all analytical procedures, supervising the performance of company chemists and field operations, and quality assurance of all work performed. For approximately 18 years, our company routinely inspected buildings and other facilities, analyzed bulk, air filter and other environmental types of samples for asbestos content, designed and monitored asbestos abatement projects while usually working for the building owner, and performed in-house research and development of asbestos surface sampling and testing procedures, as well as creation of an asbestos product identification database, utilizing authenticated samples of various asbestos products. Consulted with, and/or testified for many governmental, educational,

industrial and individual clients over the period of approximately 1979 to the present on a broad range of aspects involving asbestos exposure, best industrial hygiene practices, asbestos inspection and management planning, asbestos abatement specification writing, conducting project supervision/worker training, asbestos control technology, negative air glovebag / glovebox technology, surface contamination monitoring practices, surface cleaning practices, abatement project design and performance practices, OSHA regulations and compliance/interpretation, EPA regulations and compliance/interpretation, laboratory analytical methodology, and asbestos technology/regulatory state-of-the-art.

3. On several occasions, we performed retrospective asbestos contamination surveys and using dust exposure risk-estimating models for toxic/carcinogenic particulates which were developed in-house, calculated the worse-case asbestos exposures to certain occupants. These models have successfully been utilized in casework involving asbestos fiber exposures from generalized building contamination and have been accepted in at least one court case to date.

   During the period of approximately 1970 to the present, Dr. Joseph Guth has also performed research on asbestos-related issues and testified as a expert in asbestos product liability and worker/occupant exposure cases. He has also performed original research and published this work in dealing with the development of methods and models to calculate the release and movement of hazardous dust particulates in building environments for exposure risk assessment. He has been a paid peer reviewer and consultant to the U.S. Environmental Protection Agency and to the National Institutes of Occupational Safety and Health in those subject areas as well as in the development of new control methods for safe dust control during abatement of hazardous construction materials. He has also been a paid consultant/trainer to Virginia Occupational Safety and Health Administration to train their compliance officers and in-house training personnel in long-term, low-level asbestos hazard and exposure assessment procedures.

4. Dr. Guth created, presented and sponsored the first asbestos training seminar courses in the United States in 1980 after seeing a need for such information. They were well attended by various governmental officials, including representatives of the EPA and OSHA and some federal legislators. Subsequently, the EPA adopted the course design and information content as the primary requirements when they promulgated asbestos training requirement regulations several years later.

During the period of operations of Interscience Research Inc., Dr. Guth performed a number of comprehensive industrial hygiene surveys of military bases, industrial and manufacturing plants in which asbestos exposure was detected and monitored. Various forms of asbestos products were located, sampled, analyzed and evaluated relative to OSHA and other government regulations and air and surface contamination from free asbestos fiber were measured to determine the levels of maximum exposure.

Dr. Guth has been an EPA-certified asbestos inspector, management planner, project designer, and contractor/supervisor for many years after AHERA regulations were enacted and licensed as such in the state of Virginia. He trained many of the state of Virginia and EPA regulatory and research personnel prior to enactment of their respective asbestos regulations. He has conducted numerous asbestos hazard surveys (both residential and workplace) from approximately 1980 to the present. He is also American Board of Industrial Hygiene-certified as an industrial hygienist in comprehensive practice (Certification # 3755), <u>including toxicology practice</u>. In that capacity as noted above, he has performed numerous industrial and

environmental evaluations of overexposure to asbestos and other hazardous substances in the workplace.

Among thousands of clients involving asbestos related issues include the U.S. Navy (first asbestos consultant to this military service, helping in development of asbestos detection and abatement program), the U.S. General Services Administration (asbestos contamination and abatement in government buildings), the Veterans Administration, the state Attorneys General of Virginia and Massachusetts (asbestos hazard assessment and expert witness services in cost recovery litigation), the school districts of Washington, DC, Philadelphia, PA and Norfolk, VA, along with hundreds of other schools and school districts across the U.S., various city and county governments (Norfolk, VA, Portsmouth, VA, Virginia Beach, VA, Arlington, VA, Philadelphia, PA, Washington, DC, Chesapeake Bay Bridge Tunnel Authority (design and monitored the longest asbestos abatement project to date – 21 miles of asbestos removal work), numerous high rise office type building inspections and abatement project design/monitoring services, Lloyds of London (asbestos-contaminated cargo and decontamination procedures), IBM, and many law firms involved in asbestos litigation (Glasser and Glasser, Norfolk, VA; Patten, Wornom & Watkins, Newport News, VA; Michie, Hamlett, Lowry, Rasmussen & Tweel, Charlottesville , VA; Ness, Motley, Loadholt, Richardson & Poole, Charleston, SC; Goldberg, Persky, Jennings & White, Pittsburgh, PA; Baron and Budd, Dallas, TX; Wallace and Graham, Salisbury, NC; Catri, Holton, Kessler and Kessler, Ft. Lauderdale, FL; Kelley and Ferraro, Cleveland, OH; Commonwealth of Virginia Attorney General, Richmond, VA; Commonwealth of Massachusetts Attorney General, Boston, MA).

Dr.Guth has rendered a considerable number of affidavits, depositions and testimony regarding the “inherent danger” of asbestos products, the ease of exposure to free asbestos fibers in environments and buildings containing these products, and the ease of transport (“asbestos fiber drift”) nature of asbestos in buildings and their associated locales. His asbestos fiber drift testimony has met the Daubert criteria for admissibility in Ohio state court.

Dr. Guth has published numerous papers and articles on many aspects of asbestos technology and the related science, control technology and management issues. These publications are available upon request, as is an extensive case list file.

(Updated 1/30/2002)

ASBESTOS RESEARCH HISTORY

of
Joseph H. Guth, Ph.D., CIH

Formerly of Interscience Research Inc.
Presently of Scientific and Forensic Services, Inc.

This is a brief historical summary of the research and practical experience of Dr. Joseph Guth regarding his involvement with various asbestos-related matters. It describes the events and philosophy that has led to his broad contributions in this area of his professional activities.

In the early 1970s, during his graduate work at the University of California at Berkeley, Dr. Guth conducted original basic scientific research in the field of cellular biophysics and biochemistry. During his studies and experiments in the area of cancer research that focused on the various triggering events for cell division in human cells, he utilized various types of carcinogens that were known at that time, including asbestos fibers. His work entailed measurements of cell division rates, cell calcium changes, cyclic AMP changes, and conversion to unregulated growth before and after application of carcinogens to cells growing in cell culture.

In the mid 1970s, Dr. Guth received a university professorship and taught and conducted basic research in mechanisms of carcinogenesis, presenting some of his findings and a model for asbestos fiber carcinogenesis to the Virginia Academy of Science in the late 1970s.

In the late 1970s, Dr. Guth reestablished his commercial testing and R & D laboratory (***Interscience Research, Inc***.) in Norfolk, VA as an adjunct to his university activities, but soon it became his principle professional career activity.

In 1979, Dr. Guth began offering laboratory and field services through Interscience Research, Inc. to the shipbuilding and repair businesses and the Navy in the Mid-Atlantic region of the United States. He very quickly became the main source for these services in the Norfolk, VA area and personally monitored scores of shipboard asbestos removal operations in the early years. Most of the early work centered on air monitoring for OSHA compliance for the asbestos removal workers rather than clearance monitoring. But the work practices and industrial hygiene practices in those days were more rudimentary than they later became. Many instances of obvious improper removal, cleaning and inspection of final work area were observed but could not be rectified due to poorly written contracts between the shipyards/Navy and the abatement contractors. So many lessons were learned in this period about what could go wrong and what needed to be improved upon.

In 1979-1980, it was apparent that much information needed to be assembled and presented to the various types of individuals, that is to say, asbestos professionals, who have any responsibility in the inspection, hazard determination, specification writing, regulation writing, industrial hygiene oversight, and abatement contracting parts of this newly developing technology. The state of the art at this time was very rudimentary in the U.S. It was much further advanced in Great Britain however. New companies that provided a broad range of asbestos removal products were springing up here at that time. Dr. Guth found that there were no formalized training courses or seminars to provide the necessary practical information for any of these practitioners to get the most advanced or current information about the various aspects of asbestos management and removal practices. He developed and sponsored the first two asbestos training seminars in the

U.S. and presented them in Williamsburg, Virginia in late 1980. Industrial hygienists, engineers, laboratory personnel, sampling technicians, government regulators such as the EPA and OSHA, legislators, attorneys, property owners/managers, school districts, asbestos abatement contractors, and many, many more types of people attended these sessions. Dr. Guth had been conducting research on negative air pressure glove bag design for the removal of asbestos pipe insulations and presented his findings to these seminars as the next direction for the state of the art in asbestos control technology. (He was later invited by the National Institutes of Occupational Safety and Health and the U.S.E.P.A. to train and instruct personnel under their programs in the design, construction and utilization of negative air glove bags for asbestos removal. NIOSH/EPA tests of these verified the high level of hazard control afforded by this approach, even when first-time personnel used them.) The seminars were a resounding success and the EPA adopted their design and content years later when this type of training became mandatory under current regulations. Dr. Guth continued teaching and training thousands of students over the next several years in various subspecialties of the asbestos related professions.

A very striking and impressive event occurred in 1980 when Dr. Guth was asked to advise a local city about an inadvertent asbestos disturbance/removal that took place while other renovations were being undertaken in the City Hall Building. Asked to inspect and make recommendations regarding a large area within the main building where electricians had removed a drop ceiling and had scrapped away a large amount of sprayed-on fireproofing (that was later determined to contain asbestos), the contractor's employees had refused to go back to work in the work area. The City was concerned that they had not forewarned the contractor of the asbestos nor had had it tested, and were further concerned that other building occupants and employees of the city were probably exposed to circulating asbestos dust in the HVAC system over several months since the ventilation system had never been isolated from the work area and had continued in operation.

When Dr. Guth inspected the area, he wore appropriate respiratory protection and disposable clothing along with a personal air sampler. The fluffy dry asbestos debris and dust was several inches thick throughout the floor that was over 10,000 square feet in area. Expecting a high airborne reading of asbestos, Dr. Guth was impressed that the actual measured reading was very low. This became a new line of research for him and was triggered from this experience. The fact that asbestos is a heavier-than-air particulate that tends to settle on surfaces when the atmosphere is quiet had not been well recognized or anticipated by the OSHA regulations in those early days. Dr. Guth concluded that if one is interested in assessing the true exposure risk to hazardous particulates, then it was mandatory that one measure *ALL* of the particulate content of a given environment, not just the variable and transiently resuspended airborne fraction thereof.

As a scientist who had both a research background in the development of analytical methodologies and as an industrial hygienist dealing with early asbestos abatement practices, he began acquiring more empirical data by collecting many types of samples. Having to determine the amounts of asbestos settled on surfaces, he developed both field sampling procedures and laboratory methods of analysis for determining the presence and amounts of free settled asbestos fibers in these samples from various kinds of surfaces. Many of these early reported methods are in general and common use today. His work in this field has been utilized and cited by the U.S. E.P.A. and the Health Effects Institute in their Asbestos Research Report.

During these early years of the 1980s, Dr. Guth independently developed field-sampling methods such as Aggressive Air Sampling using electric leaf blowers, months ahead of the EPA's own efforts in this regard, and he also was the first to develop such surface dust sampling procedures as Microvacuuming and Tape Lifts. He also helped to develop some early analytical laboratory methods for both light and electron microscopy that were used to analyze these types of samples and to analyze more difficult types of bulk asbestos samples, such as floor tiles, asbestos-containing cement, and asbestos-contaminated soil.

Interpreting such data proved more challenging however since there were no data or models to connect surface associated asbestos dust levels with the amounts of asbestos that were taken into the occupants' bodies of these areas. Thus, exposure and body burden, were at least one more step removed from each other than the connection between air concentrations and body burdens. In his studies over a number of years, Dr. Guth became convinced that if there were a reservoir of freely mobile asbestos fibers in a semi-closed environment, then there would be repeated cycles of human exposure resulting from the mere presence of these fibers in conjunction with the human and physical activities that occurred during occupancy. He sought to define all of the variables leading to exposure from this source. Utilizing various physical and mathematical modeling practices, Dr. Guth developed a straightforward mathematical Exposure Risk Model for Hazardous Particulates that has received wide adoption by the asbestos management and inspection community. The model can predict the worse case exposures that are possible in a given environment and can predict the chances of developing mesothelioma, lung cancer and asbestosis in the occupants, given a worse case exposure scenario. He has also developed a General Free Asbestos Fiber Transport Model that can describe mathematically how asbestos fibers can migrate from the locations they were originally installed in as Asbestos Containing Materials (ACMs) to other locations that do not contain ACMs.

During the period from 1980 to 1988, Dr. Guth had many opportunities to conduct asbestos research in "real world" locations. These opportunities usually presented themselves in the form of asbestos abatement sites that had multiple identical rooms in a building with identical asbestos products and usage/repair histories. As asbestos consultant to many school systems, governmental systems and commercial building owners, he often was in charge of the asbestos abatement projects from beginning to end as the asbestos inspector, management planner, project designer, and project monitoring firm, clerk of the works, industrial hygienist and legal expert for the owner. Dr. Guth was able to design many research studies in conjunction with the abatement projects because of the availability of multiple near-identical sampling/testing environments. In these projects, the various new types of asbestos surface dust sampling and analysis methods were perfected, the exposure risk models were tested and asbestos abatement control and removal techniques were perfected. The highest standards of control and cleanliness left in each of these projects has provided these various facilities with an enduring legacy of a virtually hazard-free status with respect to the original asbestos content and conditions. Reports from some of the property owners/managers as late as 2000 have indicated that no lawsuits or other claims have been filed against them now that the material and contamination were fully removed from the affected areas. This is in contrast to the occasional requests from facility owners for Dr. Guth to re-inspect their facilities (schools, child care centers, churches) where other abatement professionals had performed substandard asbestos abatement, inspection and testing work and then failed to leave the facility in an acceptably clean or cleared condition.

During the period from 1980 to the present, Dr. Guth wrote over 200 asbestos abatement contract specifications for as many projects, a number of which involved over a million square feet of asbestos abatement work each. He also designed and supervised the longest asbestos

abatement project. The Chesapeake Bay Bridge Tunnel, a 21 miles long asbestos abatement project, was supervised by Dr. Guth for the CBBT Authority and came in under budget and ahead of schedule. His abatement clients have included the U.S. government, U.S. military, many state governments, local governments, large industrial and commercial facility owners and schools and hospitals in many states. Each has received state-of-the-art project work.

He is currently working on development of a total asbestos exposure and disease risk assessment computer modeling program and its use in a research study to the exposed population in New York City following the September 11, 2001 attacks as well as a completely computerized virtual reality training and examination program for training asbestos and lead inspectors and management planners.

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