

Delno D. Malzahn, C.I.H.
Senior Managing Scientist

Professional Profile

Mr. Delno D. Malzahn is a Senior Managing Scientist in Exponent's Health Sciences Center for Occupational and Environmental Health. Mr. Malzahn is a Board Certified Industrial Hygienist with 39 years of experience assisting clients and company management with environmental and industrial hygiene issues. He has extensive management and technical expertise related to environmental and occupational health compliance. He has managed and conducted numerous occupational health and environmental exposure studies and investigations for variety of industries (asphalt, oil and gas, chemical manufacturing, fiberglass manufacturing, flavor and fragrance manufacturing, etc.) and variety of substances and physical agents (asbestos, asphalt fumes, benzene, carbon monoxide, lead, metal removal fluids, mercury, nanoparticles, PAH, PCBs, petroleum hydrocarbons, solvents, silica, welding fume, noise and heat stress, etc.), ambient air quality studies (particulates and toxic chemicals), ambient air quality dispersion modeling, indoor air quality exposure studies (antimicrobial products, various chemicals including diacetyl, petroleum distillates, reduced sulfur compounds, xylene and, pesticides and bioaerosols including mold and bacteria), indoor air quality modeling, building ventilation and water /moisture intrusion studies and soils and groundwater studies (toxic chemicals). He has also designed and conducted exposure simulation studies for reconstruction of past occupational asbestos and trace benzene exposures. He has supervised and provided technical direction to environmental and industrial hygiene professionals. He has extensive experience in health risk communication to workers and the public. Mr. Malzahn's formal education is in the fields of Meteorology and Environmental and Industrial Health from the University of Michigan. He has also received training in toxicology from Wayne State University and has advanced his professional knowledge through numerous short courses and professional educational programs.

Academic Credentials and Professional Honors

M.S., Industrial Health, University of Michigan, 1971

B.S., Meteorology and Oceanography, University of Michigan, 1969

American Industrial Hygiene Association, Aerosol Technology Committee

Prior activities: Board of Directors, Michigan Industrial Hygiene Society 2009–2010; Detroit Regional Chamber of Commerce (Chairman, 1995–1998; Environmental and Energy Policy Committee)Michigan Manufacturers Association (Air Quality Committee); National Asphalt Pavement Association (Engineering and Safety Subcommittees); Interstate Natural Gas Pipeline Association (Environmental Committee; Chairman, Ozone Transport Advisory Task Force); American Gas Association (Environmental Matters Committee); Asphalt Industry Environmental Group (Chairman, 1989–1997; Exposure Assessment Task Force)

Licenses and Certifications

Board Certification, Comprehensive Practice of Industrial Hygiene, American Board of Industrial Hygiene, 1975

Selected Publications

Sheehan P, Malzahn D, Goswami E, Mandel JH. Simulation of benzene exposure during use of a mineral spirits solvent to clean elevator bearing housings. *Hum Ecol Risk Assess* 2008; 14(2):421–432.

Malzahn DD. New models, technologies help cut ozone formation, transport. Pp. 59–67. In: *Pipe Line & Gas Industry*. Houston, TX, Gulf Publishing Co., 1999.

Malzahn DD. Ground level ozone: A review of the science, the regulations and the control technologies. 1999 AGA Operating Section Proceedings, Washington, DC, May 1999.

Mutchler JE, Malzahn DD, Vecchio JL and Soule RD. An improved method for monitoring heat stress levels in the workplace. *Am Indust Hyg Assoc J* 1973; 37(3):151.

Malzahn DD. Control of industrial stack emissions. The industrial environment—its evaluation and control. Chapter 43. U.S. DHEW, Cincinnati, OH, January 1973.

Presentations

Malzahn DD, Mowat F, Armstrong P. Simulation of asbestos release during dismantling of a residential sectional boiler. American Industrial Hygiene Conference & Exposition, Minneapolis, MN, May, 2008.

Goswami E, Malzahn DD, Richter R, Sheehan P. Simulation and modeling techniques to reconstruct historical benzene exposures. Society of Risk Analysis Annual Meeting, October 2006.

Malzahn DD. The NO_x SIP call: The rule, some numbers, some key issues and some unanswered questions. News and Notes. East Michigan Chapter, East Central Section, Air and Waste Management Association, Spring 2000.

Cook DK, Malzahn DD. Natural gas pipeline PCB cleanup program. Hazardous Materials Management Conference, August 1987.

Malzahn DD, Lee WL. An occupational health hazard rating scheme for coal gasification projects: Engineering design phase. American Industrial Hygiene Conference, Fairfax, VA, May 1981.

More than 100 presentations to various other technical and trade organizations on variety of occupational and environmental health topics.

Prior Experience

Director of Environment, Health, and Safety, Director of Industrial Hygiene and Environmental Affairs, Manager of Industrial Hygiene and Senior Environmental Engineer, ANR Pipeline Company, Coastal Corporation, 1977–2001

Group Leader Ambient Studies, Clayton Environmental Consultants, Inc., 1971–1977

Project Experience

Asbestos

Reviewed and developed a comprehensive summary of the early history of and analytical methods for sampling asbestos.

Retained as Industrial Hygiene expert for class action asbestos case involving environmental exposure at an elementary school.

Retained as Industrial Hygiene expert for an asbestos premises cases involving occupational exposures and environmental compliance at natural gas pipelines, manufacturing, landfill and construction sites.

Retained as Industrial Hygiene expert for various asbestos product liability cases involving floor tiles, gasket and valve packing, small boilers, grinding wheels, friction products and asbestos glove exposures.

Designed and conducted asbestos exposure reconstruction studies of pipe coatings, heat treat furnaces boilers and pizza ovens.

Managed the environmental assessment and remediation plan development for asbestos containing material located at a hazardous waste site.

Responsible for company asbestos management program.

Conducted numerous workplace asbestos exposure studies including studies of garage mechanics, plant operation's workers and office workers.

Developed and approved company policies regarding use and disposal of asbestos containing materials.

Reviewed qualifications and approved asbestos remediation contractors for multiple asbestos abatement projects.

Conducted employee hazard communication meetings on asbestos.

Performed various air quality studies of asbestos, including source emissions and ambient air.

Designed and managed major ambient air quality investigation of amphibole asbestos in northern Minnesota during environmental litigation.

Asphalt Fume

Directed a national occupational health exposure assessment project for asphalt fume.

Managed a national prospective epidemiology project for occupational exposure to asphalt fume.

Advisor in a national multiyear chemical/toxicological research project on occupational exposure to asphalt fume.

Provided oral comments on occupational exposure to asphalt fume to the American Conference of Governmental Industrial Hygienists TLV Committee and NIOSH.

Provided strategic planning advice to a national asphalt marketing group on occupational health issues.

Silica

Retained as Industrial Hygiene expert for several product liability cases involving exposure to silica sand.

Directed and performed literature reviews on occupational exposure to silica and abrasive blasting.

Metal Removal Fluids

Retained as Industrial Hygiene expert for product liability cases involving exposure to metal removal fluids and draw oils.

Retained as Industrial Hygiene expert for a multi plaintiff case involving occupational exposure to metal working fluids.

Directed and performed literature reviews on occupational exposure to metal working fluids.

Indoor Air Quality

Retained as Industrial Hygiene expert for numerous residential, commercial, multi tenant and hotel mold, *Legionella* and water intrusion related cases.

Retained as Industrial Hygiene expert for cases involving exposure to construction chemicals, consumer and antimicrobial products. Examples include reduced sulfur emissions from Chinese

drywall, fiberglass from insulation, formaldehyde from manufactured wood products, diacetyl from microwave butter popcorn and triclosan from plastics and antimicrobial sprays.

Conducted numerous indoor air investigations in residential and commercial buildings.

Consultant to insurance, law firms and home and building owners on indoor air quality cases involving mold and bacteria exposure.

Environmental Remediation

Retained as an Industrial Hygiene expert for case involving occupational exposure to toxic metals during remediation of metal plating waste.

Directed several multimillion dollar environmental remediation projects, superfund and environmental site and public health investigations including some with high public profiles (Harbortown Development Brownfield Project on the Detroit riverfront).

Managed environmental assessment and remediation projects involving PCBs, lead, hydrocarbons (benzene, toluene and xylene) and mercury.

Responsible for multi-state multi-million dollar soil and sludge remediation project.

Consultant to major energy company on PCB remediation regulations.

Ambient Air Quality

Performed a variety of tasks related to air quality permitting.

Provided expert advice on air quality permitting to a major corporation.

Selected to lead natural gas pipeline industry in matters dealing with ozone transport issues.

Designed and conducted numerous ambient air quality studies.

Guided the development of custom air quality dispersion models.

Developed and marketed air quality, meteorological and emission source testing services for a national environmental consulting firm.

General Industrial Hygiene

Conducted nanotechnology particle exposure study.

Conducted NFPA 654 dust explosion study.

Retained as an Industrial Hygiene expert for a case involving occupational exposure to plastic decomposition products at a bottle manufacturing facility.

Conducted exposure reconstruction study for a trace benzene product liability case.

Performed various industrial hygiene studies in oil refineries.

Supervised the development of an industrial hygiene program for assessment, worker protection and waste management of Naturally Occurring Radioactive Materials (NORM) at various oil and natural gas processing, transportation and storage facilities.

Served as principal investigator for a NIOSH sponsored research project on occupational heat stress.

Directed a major energy company's OSHA Hazardous Communication Program and product stewardship activities.

Managed company Industrial Hygiene and Hearing Conservation Programs.

Conducted facility industrial hygiene and toxic waste studies.

Supervised the development of an innovative Occupational Health Hazard Rating System for the Great Plains Coal Gasification Plant—the first synthetic fuel plant in the United States.

Corporate Industrial Hygiene and Environmental Management

Top policy advisor for major energy company's environmental and occupational health programs.

Senior environmental liability and technical advisor for strategic business developments including major company construction, acquisition and facility divestitures.

Senior regulatory compliance negotiator and technical advisor on environmental litigation matters; routinely provided expert advice to Legal Department.

Lead company witness on environmental policy for toxic tort and insurance cost recovery cases.

Responsible for enhancement of environmental compliance programs including training, audits, and investigation.

Held leadership positions on various national trade associations' environmental committees.

Active involvement in federal and state environmental legislative initiatives and agency rule making. Prepared comments and testified at public hearings.

Directed multimedia corporate environmental compliance, environmental audit, industrial hygiene and non-operations safety programs.

Developed innovative pollution prevention and environmental compliance cost reduction programs.

Professional Affiliations

- American Industrial Hygiene Association—AIHA
- Academy of Industrial Hygiene
- Michigan Industrial Hygiene Society local section of AIHA
- Yuma Pacific Southwest local section of AIHA