

Exponent®
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Professional Profile

Mr. Hicks' areas of experience include environmental health investigations related to industrial settings, concerns of environmental contamination, and indoor air quality in the built environment. He also has experience in areas such as reports of illness and disease clusters with concerns of environmental causes.

These studies have included hazardous waste sites, indoor air pollution/building illness investigations; environmental mold evaluations; asbestos, lead, and other hazardous material abatement and remediation projects; asbestos and crystalline silica exposure and health assessments; workplace chemical and dust exposure assessments; pesticide use and applications; environmental health issues associated with agricultural operations; health, safety and environmental audits; regulatory analysis and compliance plans; hazardous waste health and safety support; radioisotope measurement and exposure assessments; microorganism and sewage contamination; environmental lead and lead-based paint studies within the built environment; ambient air toxic measurements and studies; and source emission measurements from a wide variety of combustion devices, processes, and agricultural facilities.

Mr. Hicks routinely serves as an expert witness. He has provided consultation in these areas in a diverse cross section of environments, including: manufacturing environments, electric utilities, mining, vehicles, transportation and service facilities, railroad, maritime and aircraft operations, agricultural activities, metal processing and mining facilities, office and institutional buildings, residential settings, construction sites, electronics manufacturing and assembly, chemical and petroleum operations, food processing, pulp and paper operations, wood products, agricultural operations, and hazardous waste sites.

Mr. Hicks has taught public health, safety, environmental science, industrial hygiene, indoor air quality, and related courses for the University Extension programs at UC Davis and UC Berkeley since 1982.

Academic Credentials & Professional Honors

M.P.H., Public Health/Industrial Hygiene, University of California, Berkeley, 1977

B.S., Biochemistry, University of California, Davis, 1974

Fellow, American Industrial Hygiene Association

Prior Experience

Geomatrix Consultants, Principal Scientist and Operating Unit Manager, 1994-2002

Radian Corporation, Sr. Industrial Hygienist and Program Manager, 1985-1994

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Fireman's Fund Insurance Company, Senior Industrial Hygienist, 1978-1985

University of California, Davis and Berkeley - Extension Program Instructor, 1982-present

State Compensation Insurance Fund, Industrial Hygienist, 1977-1978

Professional Affiliations

American Industrial Hygiene Association—AIHA, Sacramento Valley Section (Past President)

American Industrial Hygiene Association—AIHA (Fellow)

American National Standards Institute, Committee Z 9.8 member

AIHA National Indoor Environmental Quality Committee (Past-Chairman, 1999)

International Society of Indoor Air Quality and Climate

University of California (Los Angeles and Davis) Hazardous Waste Consortium Advisory Board

University of California Extension (Davis) Health and Safety Certificate Advisory Board

University of California Berkeley and Davis, Extension Instructor (Indoor Air Quality, Mold, Occupational Health and Safety Regulations, Industrial Hygiene)

CAL/OSHA Advisory Committee, Minimum Ventilation Standard (Technical Consultant)

EPA Building Assessment and Study Evaluation Program Steering Team

EPA Peer Review Panel—Indoor Air Quality

Publications

Hicks JB, McCarthy SA, Mezei G, Sayes CM. PM1 particles at coal- and gas-fired power plant work areas. Annals of Occupational Hygiene 2012; 56:182-193.

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Hygiene Association (AIHA), AIHA Press, Fairfax, VA, 2008.

Martin R, Malzahn D, Hicks J, Sheehan P. Energy-saving thermal insulation—Industrial hygiene and occupational health considerations. Industrial Heating 2008; 75:54-57.

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Hicks J, Hessel P. Potential health effects of crystalline silica exposures from coal fly ash: A literature review. Electric Power Research Institute (EPRI), Report No. 1012821, Palo Alto, CA, 2006.

Hicks J. Recommendations for the management, operation, testing, and maintenance of HVAC systems: Maintaining acceptable indoor air quality in non-industrial employee occupancies through dilution ventilation. In: American Industrial Hygiene Association, AIHA Guideline 2. Burton (ed), Fairfax, VA, March 9, 2004.

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Harris MK, Hicks J, Gunderson E (eds). Indoor air quality. In: Essential Resources for Industrial Hygiene: A Compendium of Current Practice Standards and Guidelines. American Industrial Hygiene Association, Fairfax, VA, 2000.

Hicks J, Edwards CE. How to recognize and evaluate an ‘environmental mold' claim. ABA Tort and Insurance Practice Committee News, Fall 2000.

Fabinova E, Yager J, Hicks J. Airborne arsenic and urinary excretion of arsenic metabolites during boiler cleaning operations in a slovak coal-fired power plant. Environmental Health Perspectives 1997; 105(8):836.

Hicks J. Is Legionnaires disease a threat?" Energy and Environmental Management 1996; 1(4):36.

Hicks J. Asphalt industry cross sectional exposure assessment study. Applied Occupational and Environmental Hygiene 1995; 10(10):840.

Hicks J. Residential indoor air quality. In: The Work Environment: Indoor Health Hazards. Hansen D (ed), Lewis Publishers, New York, NY, 1994.

Hicks J. Pollutants in the indoor environment. In: The Work Environment: Indoor Health Hazards. Hansen D (ed), Lewis Publishers, New York, NY, 1994.

Hicks J. Indoor air quality and health complaints. In: The Work Environment: Indoor Health Hazards. Hansen D (ed), Lewis Publishers, New York, NY, 1994.

Hicks J. Toxic constituents of coal fly ash. In: Managing Hazardous Air Pollutants: State of the Art Reviews. Chao W (ed), CRC Press, Boca Raton, FL, 1993.

Hicks J. Engineering solutions to indoor air quality problems. Proceedings, HVAC and Building Systems Congress ‘91, The Association of Energy Engineers, Anaheim, CA, April 1991.

Hicks J, Worl KM, Hall K. Building bake-out during commissioning: Effect on VOC concentrations. Proceedings, Indoor Air ‘90, Canada Mortgage and Housing Corporation, Ontario, Canada, July 1990.

Hicks J, Johnson AS, Winegar ED. Indoor air testing for low-level volatile organics: A site specific approach. Proceedings, Measurement of Toxic Air Pollutants, Air, and Waste Management Association, Pittsburgh, PA, June 1990.

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Hicks J, Gephart LA. Air pollution. In: New York Lifestyle Activities-Environmental Health Concerns. Cralley L, Cralley L, Clark Cooper W (eds), Wiley Publishers, 1989.

Hicks J. Fly ash exposures in coal fired boilers, Phase I and II. Electric Power Research Institute (EPRI), Research Project RP2222-2, Palo Alto, CA, June 1988.

Hicks J. Tight building syndrome. Occupational Health and Safety 1984; 12.

Project Experience

Conducted evaluations for the presence of lead-based paint at military and public housing sites to determine the presence, location, condition, and need for remedial actions to ensure the health of occupants and the workers engaged in lead-based paint abatement activities. Evaluated the detection of lead on building material surfaces, and developed benchmark clean-up screening levels and technical specifications for abatement.

Evaluated concerns of atmospheric migration of chemicals and dusts across property boundaries including lead from lead-based paint and secondary smelting, hexavalent chromium from cooling tower operations, asbestos from earth moving of naturally occurring asbestos, pesticides from structural and agricultural uses, perchloroethylene from dry cleaning and degreasing facilities, petroleum hydrocarbons from terminals and petrochemical operations, odors and ammonia from confined animal feeding operations. These studies have ranged from document review to environmental sampling and atmospheric modeling.

Developed technical specifications and conducted oversite of asbestos abatement for a wide variety of industrial, institutional, and residential structures. These have included power generation settings, schools, chemical manufacturing and laboratory facilities, apartments, hotels, and single family houses. As part of these projects, thousands of asbestos air samples have been collected. Conducted asbestos exposure assessments associated with a wide variety of products and activities, such as mechanical and engine repairs, friction products, gaskets, simulated demolition and abatement of asbestos containing building materials, activities around possible asbestos containing materials such as boilers, foundry operations, building materials, adhesives, floor tile, insulation products, industrial equipment, asbestos containing gloves, aprons, transite products, and other asbestos containing items. Evaluated selected building material products for their ability to release airborne asbestos.

Investigated many structures where illness patterns or other indoor air concerns have occurred. Investigations typically included ventilation system evaluations, analysis of illness characteristics and patterns, pollutant source and pathway evaluation, and development of effective remedies. Evaluated structures for concerns about contamination and health aspects of environmental molds. These have included single family houses, condominium complexes, apartments, schools, health care facilities/hospitals, office buildings, airports, industrial sites, and food processing facilities.

Conducted chemical and dust exposure assessments associated with a wide variety of manufacturing and energy systems operations, such as welding and cutting fumes, metal electroplating, spray and dip coating, metallizing, metal working fluids, grinding and surface finishing, demolition, construction and industrial maintenance and repair projects. Agents evaluated have included substances such as asbestos, solvent vapors, common metallic fumes, chromic acid and hexavalent chromium, copper, lead, nickel, zinc, oxides of nitrogen, carbon monoxide, diesel exhaust, hydrogen sulfide and related sulfur and amine chemicals, formaldehyde, crystalline silica and other chemical agents.

Conducted a multi-year study for the Electric Power Research Institute (EPRI) examining worker exposures to coal fly ash and its constituents at coal-fired power plants. This multiple site study, conducted at coal-fired power plants across the United States and in central Europe, involved innovative

sampling and analytical methodologies, and addressed examination of analytical procedures for coal fly ash, assessment of exposure control technologies, data management, statistical analysis and detailed QA/QC procedures. This study included collection and analysis of over 1,500 air, bulk and human subject blood and urine samples. The emphasis of the study concerned elements within the fly ash matrix, such as arsenic, other heavy metals including vanadium, lead and chromium, radionuclides, and the presence of crystalline silica.

Conducted a research project on crystalline silica and coal fly ash, with specific reference to the potential bioavailability and exposure to crystalline silica in this matrix. Also prepared a health effects summary of coal fly ash, as it pertains to crystalline silica and metal elements known to be present in this waste material.

Performed exposure assessments using direct measurements and computational modeling to determine indoor concentrations and exposures to chemical agents migrating from outdoor ambient point sources, by subsurface routes, or from indoor sources. These studies have examined residential, institutional and commercial building environments, as well as point and area sources from industrial operations. They have addressed potential health effects and confounding issues, such as other indoor sources of target chemicals.

Evaluated worker exposures to benzene, other aromatic hydrocarbons and chlorinated hydrocarbons, associated with solvent usage at a variety of workplaces, such as automotive and heavy equipment repair facilities, commercial printing operations, industrial maintenance tasks, machine shops, and manufacturing operations. These assessments have considered solvents with varying amounts of benzene, and have considered exposure by inhalation and dermal absorption routes.

Directed a comprehensive investigation of several buildings suspected of being contaminated with the Legionella bacterium following concerns that some occupants had developed Legionnaires' disease. A thorough inspection of the building spaces and likely sites where the bacterium could proliferate was performed, as well as a comprehensive sampling and culturing of water samples to identify water sources where the organism may be present. Meetings were held with employees to explain the investigative procedure and to respond to questions, which had a calming effect and avoided the need to evacuate the building.

Managed a nationwide multi-industry asphalt fume occupational exposure assessment conducted for the Asphalt Institute. Air and skin wipe samples were collected from several hundred employees engaged in work activities where asphalt fume exposures could occur, in five different industry categories throughout the United States. Innovative analytical procedures were performed to quantify multi parameters off of each sample collected. Statistical analysis of the data was performed to summarize the results and compare exposures in different industry sectors and by job description. This information was presented to NIOSH and OSHA and used in the rule-making process. A similar project was performed for the Florida Department of Transportation, that focused on exposures associated with the use of ground tire rubber (GTR) used in asphalt paving products. An expanded list of potential chemical exposures, that required innovative sampling and analytical methods, was examined as part of this project.

Evaluated concerns of potential exposures to radionuclides and naturally occurring radiation in a variety of settings. These have included radon and radon daughters in buildings and residential structures, as well as associated with possible emissions from building materials and in underground settings; concerns of such exposures associated with petroleum drilling operations and subsequent drilling wastes; at military facilities where decontamination of possible radioactive contaminated aircraft occurred; and associated with concerns that encased radioisotope containing sensors and deionizers may give rise to unusual exposures.

Acted as health and safety officer at several hazardous waste/pollution investigation and remediation sites. Tasks associated with these projects included review of potential hazards and chemical exposures, developing written health and safety plans, and performing worker and environmental exposure monitoring and assessments. Had principal involvement in developing and presenting health and safety

training programs for individuals working at hazardous waste sites.

Managed a number of health, safety and environmental audits for a variety of industries and activities. The types of industries audited by Mr. Hicks has included wood and paper products manufacturing, mining and mine ore processing, aerospace manufacturing and research and development operations, electronic manufacturing, furniture manufacturing, petroleum refining, power generation (coal, oil, gas and geothermal), vehicle assembly, and paint and coatings manufacturing. In one project, the audit addressed hazardous material storage, handling, receiving and transportation, with emphasis toward worker and public health and safety. This project was performed for a large aerospace firm that had 25 buildings in three adjacent cities. The project included development of several audit protocols for the diverse activities being performed, and design and implementation of a data management system to efficiently report and summarize the audit results.

Managed a program involving pooled emissions measurement of air toxic compounds for a consortium of asphalt facilities in Southern California. As Program Manager, Mr. Hicks managed a project that involved measuring air toxic and criteria pollutant emittants from five asphalt facilities for a wide variety of chemicals including multiple metals, polycyclic aromatic hydrocarbons, volatile organic compounds, aldehydes, hexavalent chromium and criteria pollutants. Due to the variations in production at each facility, careful coordination was required to ensure adequate production runs to meet the sampling duration requirements for the various methods. Special consideration was given to ensure the lowest possible detection limits were achieved.