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INDUSTRIAL HYGIENE & SAFETY CONSULTANT, & EXPERT WITNESS

Award winning, industrial hygiene and safety expert with over 25 years of broad international experience practicing, teaching and authoring to anticipate, recognize, evaluate, control and prevent workplace chemical, biological, and physical health and safety hazards in high hazard industries.

Extensive expertise serving on industry Expert Advisory Boards for bioaerosol, Covid-19 response program management and planning that includes chemical and non-chemical disinfectant exposure risk assessment, facility technology evaluation, particulate and bioaerosol control and research.

Currently serves as the Co-Chair of the AIHA-ASHRAE Indoor Air Quality (IAQ) Task Force for organizational collaboration for sensor technologies and public IAQ technical communications.

Domestically and internationally recognized for leadership service to the industrial hygiene profession as a Chair and/or Officer for the American Industrial Hygiene Association, the American Board of Industrial Hygiene, the Occupational Hygiene Training Association, and the Joint Industrial Hygiene Ethics Education Boards of Directors and Committees.

Currently serves as Vice-President for the AIHA Executive Board of Directors, and Chairs the University of Michigan Graduate School of Public Health COHSE External Advisory Board, while continuing to practice industrial hygiene program management as an experienced (15+ years) independent consultant, subject matter expert, and international AIHA Distinguished Lecturer and author.

- All levels of occupational hygiene and safety program training and strategic development
- Covid-19 Response Management
- Bioaerosol assessment and pandemic particulate sensor control programs
- HEPA and UV-C Air Disinfection evaluation and controls
- Trained and experienced expert witness
- H&S policy and program development and audits
- Potent compound and high hazard exposure assessment and containment implementation
- USP 800 Safe Hazardous Drug Handling conformance
- Hearing conservation program development and controls
- Explosive (UXO) hazardous waste and military testing operations program development
- Respiratory protection and fit testing programs

SELECT & RECENT SIGNIFICANT ACCOMPLISHMENTS

Expert

- Provided Bioaerosol risk assessment subject matter expert services for the plaintiff In-Flight Services v. Stockbridge Aventura case in Dade County, FL. The judge decided in favor of the plaintiff holding the building owner Stockbridge Aventura responsible for addressing facility pandemic resilience, particulate controls and occupancy.
- Provided sensor system expert opinion and testimony services for various industries with volatile organic compound, carbon monoxide, and methane sensor system incidents.
- Develop multi-million health and safety business strategies for senior leadership for increasing facility pandemic resilience as a technical expert on the ABM Industries Expert Advisory Board. ABM is the nation's largest provider of facility maintenance and improvement services.
- Co-authoring on the American Industrial Hygiene Association response to OSHA regarding the Covid Emergency Temporary Standard

- Delivered bioaerosol, pandemic-related lectures at ASHRAE, AIHA, ACGIH, APPA national conferences and several domestic and international professional facility maintenance conferences as a recognized industrial hygiene expert in the field of bioaerosol evaluation and UV-C and HEPA controls.
- Currently serving as an active and voting member of the ASHRAE 185 Standards Committees developing the testing standards for HEPA and UV-C air purification devices with sensor systems and bioaerosol laboratory analysis (185.3 and 185.4).

Technical

- Planned and carried out evaluation and exposure assessment of global drug supply management resulting in >55% reduction in respiratory personal protective equipment in clinical packaging operations. Completed initiative resulted in potential total reduction of >70% respiratory protection equipment as new engineering particulate controls were implemented and evaluated for controlling highly potent pharmaceutical dust.
- Developed and executed strategy for assessing potential immediately dangerous to life and health chemical release during missile destruction testing. Outcome enabled missile scientists to safely enter the test site and collect time-critical data.
- Provided expert witnessing to nationally profiled, occupational health cases in multiple states regarding chemical, biological and physical hazard exposures.
- Executed reduction of >70% respiratory personal protective equipment for potent compound isolators as result of statistical analysis of occupational hygiene data, saving time and materials and eliminating need to transport active pharmaceutical ingredients between facilities.
- Identified and addressed the mysterious source of staphylococcus biohazard in canning industry to address an ongoing epidemic and prevent further widespread infections among workers.

Management

- Developed and instituted IH programs through effective change management process, impacting 85 countries, increasing engineering control implementation and reducing need for quantitative-evaluation consulting services by over 20%.
- Planned and executed highly potent (HPAPI) compound containment risk assessment and management strategy, achieving 50% improvement in potent compound containment across global manufacturing in 5 years, fully engaging engineering, operations and EHS communities in reaching goal.
- Designed sustainable industrial hygiene risk assessment strategy and tools, addressing prioritization of industrial hygiene goals and resources, resulting in 32% increase in manufacturing site exposure assessments and global program engagement.
- Reviewed, planned, and prepared EHS response to Statement of Work for TPMs, required for first trial as third-party manufacturer in clinical supply operations, leading team in completing multiple rounds of production of highly potent compound for other major pharmaceutical companies in collaboration with global pharmaceutical operations in high-containment facility.

Training

- Served as volunteer Co-Chair and leader for 13 years for the globally-endorsed Occupational Hygiene Training Association (OHTA) for development and proliferation of free, public-domain training modules, collaborating in creating module materials taught in over 55 countries and officially training over 10,000 students regarding OH technical skills to universally impact and grow the occupational hygiene profession.
- Directly addressed IH competency in global corporations by implementing training curriculum, impacting over 100 health and safety staff by providing endorsed training materials and tools for manufacturing-site-level industrial hygiene programs.

- Recognized domestically and internationally as an actively serving AIHA Distinguished Lecturer for the topics of industrial hygiene program management, risk assessment, mathematical models for exposure predictions, professional ethics, and bioaerosol evaluation and UV-C and HEPA controls.

PROFESSIONAL EXPERIENCE

OCCUPATIONAL HEALTH MANAGEMENT, PLLC, Shelby Township, MI

Current

Principal Consultant / Expert / CEO

Provide health and safety program development strategies, audits, expert witness, and technical services to high-hazard industry Boards of Directors and Expert Advisory Councils to enable dramatically improved utilization of scarce resources for recognition, evaluation and control of workplace chemical, biological and physical hazards.

LAFARGEHOLCIM, Chicago, IL

Global / Group Occupational Hygiene Manager

Identify and address gaps in a low-maturity industrial hygiene (IH) program at global level. Developed and launched comprehensive risk assessment program to address recognition, qualitative and quantitative evaluation, and control of hazards inherent in building materials, cement, and construction industry.

ABBVIE BIOPHARMACEUTICALS, North Chicago, IL

Global Occupational Hygiene Manager – Manufacturing Operations

Developed and implemented global occupational hygiene (OH) program for highly potent large and small-molecule containment, occupational hygiene staff professional development, and allocation capital project funding. Evaluated 13 primary and secondary manufacturing site programs throughout world via audit of monitoring plans, tracking of containment improvement plans and management of IH / OH service delivery.

ABBVIE BIOPHARMACEUTICALS, North Chicago, IL

Senior EHS Specialist – Research and Development

Managed EHS operations for R&D Drug Product Development (DPD) business units, including active pharmaceutical ingredient analytical / formulations sciences, clinical supply production and packaging. Provided consulting services to clinical trial teams, pharmaceutical stability, and corporate culture committee leadership for interaction with business units throughout R&D.

BUSINESS HEALTH SYSTEMS, INC, Industrial Hygiene Consulting, Troy, MI; Madison, AL; & Port Barrington, IL

Principal Consultant / CEO

Offered industrial hygiene program management services to over 215 organizations representing broad variety of industries, including pharmaceutical, automotive, healthcare, food, construction, and public-sector organizations, as well as US military operations.

MCLAREN REGIONAL MEDICAL CENTER Occupational Health Department

Flint, MI

Industrial Hygiene Manager

Responsible for the development, implementation and management of all industrial health related programs including bloodborne and airborne pathogens, respiratory protection, ergonomics, hearing conservation, and industrial safety for industrial clients. Developed business and marketing plans as well as budget preparation and maintenance. Responsibilities also included training and supervising

industrial hygiene, nursing and clerical staff involved in the programs. Verbal and written communication and marketing skills include televised interviews, proposal development, grant writing, marketing material development and public speaking at professional association meetings and universities.

UNIVERSITY OF MICHIGAN MEDICAL CENTER Internal Medicine Department Ann Arbor, MI
Research Assistant II

Develop design of experiments, execute, and summarize the results of toxicological animal studies testing a new adrenocortical carcinoma drug. This included running radioimmuno, gas and column chromatography assays. Author in studies published in Journal of Cancer and Chemotherapeutic Pharmacology 1993;
31(6):459 -66

MICHIGAN STATE UNIVERSITY Pharmacology and Toxicology Department E. Lansing, MI
Student Fellow and Laboratory Assistant

Research the background, plan, perform, document, and formally present a project regarding the effects of neutropenia on monocrotaline pyrrole pneumotoxicity as it relates to pulmonary hypertension. Published as coauthor for Michigan Heart Association sponsored research. Awarded 2nd Place in the presentation competition as an undergraduate student competing with doctoral students.

EDUCATION

Master of Public Health (M.P.H.), Industrial Hygiene
UNIVERSITY OF MICHIGAN, Ann Arbor, MI

Bachelor of Science (B.S.), Medical Technology
MICHIGAN STATE UNIVERSITY, East Lansing, MI

CERTIFICATIONS

American Board of Industrial Hygiene (ABIH) Certification ID# 8512

Hazardous Materials Management (CHMM) Certification ID#13227

Ammunition and Explosives Certification Training (AMC-R350-4, ATEC-R 385-1, USAG-R 350-4)

PROFESSIONAL PUBLICATIONS, SPEAKING ENGAGEMENTS and PROFESSIONAL AFFILIATIONS and ADVOCACY

1. Publications Authored or Contributed To and National Public Interviews:

AIHA Synergist:

- a) "Dealing with Malpractice Protecting against the Misuse of Professional Titles" by Nancy M. McClellan, March 2013.
- b) "Moving Target Global Ethics in Industrial Hygiene Is a Continuous Process" by Nancy M. McClellan, June 2011.
- c) "Occupational Health Professionals Urge Chemical Manufacturers to Protect the Health of their Workers" <https://www.aiha.org/press/occupational-health-professionals-urge-chemical-manufacturers-to-protect-the-health-of-their-workers>

- d) AIHA and OHTA Sign Memorandum of Understanding <https://synergist.aiha.org/201802-aiha-ohta-sign-mou>

Facility Executive

- a) "Occupant Health Hinges On Indoor Air Quality", by Deborah Hetrick and Nancy McClellan, December 14, 2020 [Occupant Health Hinges On Indoor Air Quality In Buildings \(facilityexecutive.com\)](https://facilityexecutive.com)

Chemical Engineering:

- a) "Today's Value of the Occupational Health and Safety Professional in Chemical Manufacturing", pending publication
- b) "Virus Countermeasures Drive Worker Safety" By Scott Jenkins | August 1, 2020 [Virus Countermeasures Drive Worker Safety - Chemical Engineering | Page 1 \(chemengonline.com\)](https://chemengonline.com)

ABC News:

- a) "How air purifiers and cleaners may help keep you safer indoors from COVID-19" By Eden David, July 1, 2020 <https://abcnews.go.com/Health/air-purifiers-cleaners-safer-indoors-covid-19/story?id=71520539>
- b) ABC Good Morning America Interview: "Experts Warn of Possible Risks With Indoor Gatherings for Holidays" – October 2020 <https://www.youtube.com/watch?v=LC7jSdSZZ7Y>

2. Professional Lectures and Audiences

- a) Mathematical Occupational Exposure Modeling – 2021-2024 Highly Potent Active Pharmaceutical Ingredient (HPAPI) Summits, 2023 AIHA Chicago Local Section Conference
- b) Bioaerosols, Indoor Air Quality and Climate Change – 2024 AIHA Connect Professional Development Course
- c) AIHA IH Scientific Initiatives and Principles of Good Practice - 2024 IOHA in Dublin, Ireland, 2022- 2024 AIHA Connect Conferences, 2023 Wisconsin, Michigan and Texas AIHA Local Section Conferences
- d) Creating Pandemically-Resilient Facilities – APPA, ASBO, AIHA, ASHRAE and ABM Industries 2020, 21 and 22 Conferences
- e) Professional Ethics in Industrial Hygiene – 2024 IOHA in Dublin, Ireland, 2024 AIHA Connect conference, University of Michigan Comprehensive IH Reviews, Chicago Local Section Meetings, AIHce Professional Development Courses, Seattle Local Section Meetings, Michigan Local Section Meeting, Alabama Local Section Meetings. At least 6 lectures per year since 2009.
- f) IH Management Professional Development Courses – IOHA Conference, AIHce, University of Michigan Comprehensive IH Reviews, Alabama Local Section Meetings, Florida Local Section Meeting, Chicago Local Section Meetings, AbbVie EHS Conferences, Lafarge Holcim EHS Conferences. At least 4 lectures per year since 2012.
- g) Growing the IH Profession – BOHS Conferences, Irish OH Society, AIHce, Pharmaceutical Safety Conferences, Pharma Forums, Chicago Local Section, Highly Potent Active Pharmaceutical Ingredient Summits, AbbVie EHS Conferences. At least 2 lectures per year since 2004.
- h) Risk Assessment and Control Banding – BOHS Conference, IOHA Conference, Florida Local Section, AIHce, Multiple Client Professional Development Courses. At least 2 lectures per year since 2015.

- i) Personal Travel Safety – AIHce, AbbVie EHS Conference
- j) OHTA W501 – Measurement of Hazardous Substances – AbbVie IH Training Programs
- k) OHTA W506 – Ergonomics Essentials - AbbVie IH Training Programs
- l) OHTA W507 – Control of Hazardous Substances - AbbVie IH Training Programs
- m) IH Program Strategic Planning – AIHA Board of Director Sessions, OHTA Board of Director Sessions, Multiple Consulting Client Planning Sessions
- n) Pharmaceutical Containment Professional Development Courses – Highly Potent Active Pharmaceutical Ingredient Summits, Pharmaceutical Safety Group Meetings, Pharma Forum Meetings, Irish OH Society Conference, BOHS Conference, AbbVie EHS Conferences. At least 1 lecture per year since 2012.

3. **Local, National and International Professional Advocacy**

- a) Current AIHA Executive Board of Directors – Vice-President (2024-2028), Treasurer-2021- 2024
- b) Current Chair of the Board, University of Michigan School of Public Health COHSE External Advisory Board. 2015-present
- c) Current Chair of the ASHRAE-AIHA Indoor Air Quality Task Force
- d) ASHRAE Member and Bioaerosol Technology Testing Standard Development Committee 185.3 and 185.4
- e) ACGIH Member and Hazardous Bioaerosol Controls Committee Contributor 2020-Present
- f) Co-Chair Board of Directors and Leadership - Global Occupational Hygiene Training Association (OHTA) and OHlearning.com 2007-2020
- g) Coordinator/Author of the OHTA Pharmaceutical Training Module (In Progress)
- h) Past Board of Directors for the American Industrial Hygiene Association 2015 – 2018
- i) Past Executive Board Member of the American Board of Industrial Hygiene (ABIH) 2006 – 2010. Founder of the ABIH Futures Committee to promote global IH initiatives.
- j) Course Director of AIHA/University of Michigan Comprehensive IH Review 1998-2004
- k) Michigan Industrial Hygiene Society – Local Section President, Board of Directors, Conference Planner and/or Member 1994-Present – Organized the first Counterterrorism and Weapons of Mass Destruction course in the state after the 911 tragedy. Contributed to the organized effort for state title protection for the IH profession.
- l) Alabama AIHA Local Section Board of Directors, Conference Planner and Member 2004-2010
- m) Chicago AIHA Local Section Board of Directors, Conference Planner, and Member 2010- present
- n) British Occupational Hygiene Society Member 2015-2017
- o) Irish Occupational Hygiene Society Member 2015-2017

2. Expert Directory Links

- a) [Seak](#)
- b) [JurisPro](#)
- c) [Experts.com](#)

3. Recent Depositions

- a) [Eric Keeling, et.al. v Rohm & Hass Co](#)
- b) [In-Flight Services v. Stockbridge Ventura](#)