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Professional Profile

Ms. Kalmes is a certified industrial hygienist with 25 years of experience. In this role, she is responsible for designing, conducting, and managing technical studies addressing community, occupational and consumer exposure to chemical agents, including asbestos, benzene, beryllium, chlorine, formaldehyde, lead and other heavy metals, pesticides, styrene, sulfides, and chlorinated hydrocarbons.

Ms. Kalmes has performed comprehensive health investigations related to industrial settings, environmental contamination, and indoor air quality. She has conducted hazardous materials assessments, industrial hygiene surveys, environmental audits for the public and private sector, and provided recommended strategies for worker health and safety compliance programs, including preparation and review of Safety Data Sheets. Ms. Kalmes' evaluations included review of safe chemical handling procedures, use of personal protective equipment, ventilation, and employee training and chemical inventory procedures.

Ms. Kalmes also specializes in conducting and directing studies to assess potential exposure to consumer and personal care products, including evaluation of lead, phthalates, silica, asbestos, benzene, toluene, cadmium, arsenic, ethyl benzene, formaldehyde, bisphenol A, and flame retardants. She has developed sampling protocols to evaluate FDA, CPSC, and Proposition 65 claims, specifically addressing dermal contact and incidental ingestion associated with hand-to-mouth activities as well as naturally occurring lead claims in food products. She has provided exposure assessment and toxicology support for consumer product recall claims. Ms. Kalmes has assisted numerous companies in establishing compliance programs to address Proposition 65 compliance, restricted chemical listings, and green chemistry initiatives. Additionally, she has designed and directed studies to simulate and reconstruct chemical exposures associated with use and handling of consumer products in residential and occupational settings. She has also sampled and reconstructed historical exposure to asbestos, benzene, formaldehyde, and a variety of volatile chemicals in residential and workplace settings.

Ms. Kalmes has prepared over 200 regulatory human health risk assessments for various properties, including former landfills, industrial, residential, recreational, and agricultural properties and schools, including Brownfields Sites, addressing potential solvent, petroleum, PCB, and metals exposure in air, soil, and groundwater. Ms. Kalmes has evaluated residential and commercial soil vapor intrusion issues for trichloroethylene (TCE), tetrachloroethylene (PCE), and other volatile chemicals through use of soil vapor modeling and air monitoring tools. She has communicated risk results to a variety of stakeholders, including neighborhood, worker, and community groups. Ms. Kalmes has evaluated residential and commercial soil vapor intrusion issues through use of soil vapor modeling and air monitoring tools.

Ms. Kalmes has also conducted exposure assessment analyses of community and occupational exposure data for use in cohort and case-control epidemiologic studies and exposure assessments. In this role, she has designed and managed air sampling programs to evaluate various job classifications to

be used in epidemiological studies.

Ms. Kalmes has taught numerous courses on risk assessment, industrial hygiene, and toxicology at the University of California Extension Program and has developed and conducted more than 100 hazard communication training programs. Ms. Kalmes has been an invited speaker at numerous professional conferences and is frequently invited to speak and lecture on exposure assessment methods. Ms. Kalmes often interacts with local and state regulatory agencies and has testified as an expert in the area of exposure assessment, industrial hygiene, Proposition 65, and human health risk assessment.

Academic Credentials & Professional Honors

M.S., Air and Industrial Hygiene, University of North Carolina, Chapel Hill, 1983

B.S., Environmental Science, Purdue University, 1981

Licenses and Certifications

Certified Industrial Hygienist, Comprehensive Practice since 1985

Prior Experience

Managing Scientist, McLaren/Hart ChemRisk, 1989-1999

Industrial Hygienist, Clayton Consulting Company, 1987-1989

Health and Safety Engineer, Chevron Chemical Company, 1984-1987

Intern, Shell Oil Company, 1983

Intern, IBM, 1981-1983

Professional Affiliations

American Industrial Hygiene Association

Northern California American Industrial Hygiene Association

American Society for Testing Material, Risk Assessment Committee (former member)

Publications

Sheehan P, Singhal A, Bogen, R, D Macintosh, K. Kalmes, J McCarthy. Potential Exposure and Cancer Risk from Formaldehyde Emissions from Installed Chinese Manufactured Laminate Flooring. Risk Analysis. Vol. 38 No. 6, 2018. March 9, 2018.

Sheehan P, Kalmes R. Assessing exposure from consumer product use: Methods that have been developed to address manufacturer, consumer and agency concerns. Technical Programs. Society of Toxicology. December 15, 2016.

Anderson E, Sheehan P, Kalmes R, Griffin J. Assessment of health risk from historical use of cosmetic talcum power. Risk Analysis 2016 Jul 9. doi: 10.1111/risa.12664.

Kelsh MA, Alexander D, Kalmes R, Buffler P. Personal use of hair dyes and risk of bladder cancer: A meta-analysis of epidemiologic data. Cancer Causes and Control, January 2008.

Buffler PA, Kelsh M, Kalmes R, Lau E, Chapman P, Brorby G. A nested case-control study of brain tumors among employees at a petroleum exploration and extraction research facility. J Occup Environ Med 2005.

Hessel PA, Kalmes R, Smith T, Lau E, Mink P, Mandel J. A nested case-control study of prostate cancer and Atrazine exposure. J Occup Environ Med 2004; 46(4).

Buffler PA, Kelsh M, Chapman P, Wood S, Lau E, Golembesky A, Wood R, Kalmes R, Brorby G. Primary brain tumor mortality at a petroleum exploration and extraction research facility. J Occup Environ Med 2004; 46(3).

Kolanz ME, Madl AK, Kelsh MA, Kent MS, Kalmes RM, Paustenbach DJ. A comparison and critique of historical and current exposure assessment methods for beryllium: implications for evaluating risk of chronic beryllium disease. Appl Occup Environ Health 2001; 16(5):592 614.

Paustenbach DP, Burke ML, Shum M, Kalmes RM. Airborne concentrations of ethyl and methyl cyanoacrylate in the workplace. Am Ind Hyg Assoc J 2001; 62(1).

Paustenbach DJ, Jernigan JD, Bass R, Kalmes R, Scott P. A proposed approach to regulatory contaminated soil: Identify safe concentrations for seven of the most frequently encountered exposure scenarios. Regul Toxicol Pharmacol 1992; 16:21-56.

Presentations

Jonathan Hellerstein J, Sheehan P, Kalmes R. Product Exposure Assessment: Modeling versus Measuring User Exposures. Product Stewardship Conference. Columbus Ohio. September 2019.

Kalmes R, M Posson and Singhal A. Addressing Chemical Exposure from Consumer Products: Lessons Learned. Product Stewardship Conference. Washington D.C. September 27, 2018.

Posson M, Kalmes R, and Sheehan, P. Re-creation of Historical Community Exposures to Dusts and Metals, 2018 American Industrial Hygiene Conference and Exposition (AIHce), Philadelphia, PA, May 2018.

Sheehan P, Kalmes R, Posson M, Singhal A, Lewis R, Gauthier A. Challenges in assessing health risk from exposure to bisphenol A (BPA) in consumer products. Poster presentation at the Society of Toxicology Meeting, San Antonio, TX, March 11-15, 2018.

Sheehan P, Singhal A, Bogen KT, Kalmes R. Evaluating the Proposition 65 health significance of formaldehyde exposures from Chinese manufactured laminate flooring. Presented at the 55th Annual Meeting of the Society of Toxicology, New Orleans, LA, March 13-17, 2016.

Sheehan P, Kalmes R. Assessing exposure from consumer product use: Methods that have been developed to address manufacturer, consumer and agency concerns. Technical Programs. Society of Toxicology. December 15, 2016.

Lewis R, Singhal A, Gauthier A, Kalmes R, Sheehan P. Proposed methods for characterizing dermal exposure to BPA for purposes of Proposition 65. Poster Presentation, Society of Toxicology, December 15, 2016.

Singhal A, Kalmes R, Sheehan P. Using diffusive samplers to measure formaldehyde in residential indoor air. Poster Presentation, Society of Toxicology, 2016.

Sheehan P, Bogen K, Singhal A, Kalmes R. Evaluating the Proposition 65 health significance of

exposures from Chinese manufactured laminate flooring. Poster presentation, Society of Toxicology Annual Meeting, New Orleans, LA, March 13-17, 2016.

Sheehan P, Bogen K, Singhal A, Kalmes R, Roberts M, Fedoruk J. Wearable products and allergic contact dermatitis: A new risk assessment challenge. Poster Presentation, Society of Toxicology Annual Meeting, San Diego, CA, March 22-26, 2015.

Kalmes R. Sports and Fitness Industry Association. Panel Member: California Regulatory Update: How Evolving Green Chemistry Regulations Will Affect the Cost of Doing Business in the Golden State. Presented February 3, 2015.

Kalmes R. Regulatory Pitfalls: An update on hot topic regulatory changes at the federal and state level. ABA Roundtable Webinar. January 21, 2015.

Posson M, Kalmes R, M Fedoruk. Assessing Formaldehyde Exposure from Consumer Product Hair Products. SETAC North America 36th Annual Meeting, Salt Lake City, Utah November 1-5, 2015.

Kalmes R. Health Based Occupational Exposure Levels. California Industrial Hygiene Council: San Diego. Presented December 3, 2014.

Sheehan P, Kalmes R, Turnham P, Anderson E. Simulation study of potential historical user asbestos fiber exposure from cosmetic body talc use. Presented at the American Industrial Hygiene Conference and Expo, Montreal, Canada May 18-23, 2013.

Kalmes R. Risk-Based Environmental Limits-Are They Relevant to OELs. American Industrial Hygiene Association Webinar. A New Era of Global Exposure Limit Harmonization Processes. Presented April 11, 2013.

Kalmes R. Prop 65 compliance 101. Setting up a Quality Assurance Department. Speaker and panel member at 2013 Proposition 65 Conference. The City Club of San Francisco. April 8, 2013.

Kalmes R. Understanding the USEPA-Type Risk-Based Evaluation of Environmental Data. Presented at California Industrial Hygiene Council. San Diego, December 5, 2012.

M. Posson, R Kalmes, S. Hong and M. Fedoruk. Formaldehyde Exposure Assessment during the Application of Professional Hair Smoothing Products. Presented at American Industrial Hygiene Conference and Exposition. PO 113. June 19, 2012.

Kalmes R, B. Brorby, Y. Lowney. Dioxin/furan site-specific bioaccessibility for application at Industrial Site. Battelle 8th International Conference. Remediation of chlorinated and Recalcitrant Compounds. May 24, 2012. Monterey, CA. May 24, 2012.

S. Hong, Kalmes R, M. Posson, R. Richter, M. Fedoruk. Formaldehyde Exposure Associated with Use of Keratin Hair-Smoothing Products. Presented at the Society of Toxicology. Poster Session. San Francisco, CA March 11-15, 2012.

Moderator: 2011 Proposition 65 Conference. San Francisco, CA. Session: Testing Labs: Grading their Role. November 29.

Lowney, Y., Brorby, G and Kalmes R. Site-specific Bioaccessibility of Dioxins/Furans in Soil. Presented at the Society of Toxicology. Poster Session. Washington D.C. March 6-10, 2011.

Kalmes R. Effective indoor air sampling and risk communication strategies to address indoor BTEX Levels at former UST site. Presented at American Industrial Hygiene Conference and Exposition, PDC 128, May 2010.

Kalmes R. Hicks J. A method to evaluate lead surface dust concentrations in non-residential settings. Presented at American Industrial Hygiene Conference and Exposition, PDC 138, June 2009.

Kalmes R, Brorby G. Lead, lead everywhere — Evaluating potential exposure to heavy metals in consumer products. Presented at American Industrial Hygiene Conference and Exposition, PDC 192, May 2008.

Brorby G, Kalmes R, Goswami E, Mowat F, Sheehan P. Evaluating exposure to consumer products. Presented at Society for Risk Analysis Meeting, December 6, 2006.

Goswami E, Kalmes R. Exposure to formaldehyde during use of nail care products. Presented at American Industrial Hygiene Conference and Exposition, Poster #269, May 2006.

Sheehan P, Brorby G, Kalmes R, Mowat F, Richter R, Finley B. Characterization of the cumulative exposures of U.S. automobile mechanics. AIHce, Anaheim, CA, May 23-26, 2005.

Kalmes R, Brorby G, Kelsh M, Buffler P. Exposure assessment for an epidemiologic study of brain tumors among petrochemical research workers. Presented at the American Industrial Hygiene Conference in Anaheim, CA, May 25, 2005.

Madl AK, Kalmes RM, Paustenbach DJ. Community one-hour inhalation exposure limits for chemical irritants among five agencies in the United States. Presented at the American Industrial Hygiene Conference and Exposition, Toronto, Canada, June 7-9, 1999.

Madl AK, Kalmes RM, Paustenbach DJ. Comparison of acute inhalation exposure levels for chemical irritants among five agencies in the United States. Presented at the Society of Toxicology Annual Meeting, New Orleans, LA, March 14-18, 1999.

Kalmes RM, Mathur DB. Application of risk-based strategies and the containment zone provision of the Regional Water Quality Control Board, San Francisco Bay Region to implement the first containment zone for a heavy metal (mercury) in California. Presented at the Annual Meeting of the Society for Risk Analysis, New Orleans, LA, December 8-11, 1996.

Project Experience

Consumer Product Evaluations

Conducted Proposition 65 evaluations assessing potential exposure to children and adults for various chemicals, including benzene, hexavalent chromium, DEA, toluene, lead, cadmium, nickel, arsenic, phthalates, BPA, PFOA/PFAS, titanium dioxide, acrylamide, mercury, ethyl benzene, flame retardants, fragrances, and formaldehyde associated with various products, including jewelry, toys, cookware, tableware, appliances, automotive products, personal care products, and food. Developed sampling protocols to evaluate FDA and CPSC compliance as well as exposure to metals in consumer products, specifically addressing dermal contact and incidental ingestion associated with hand-to-mouth activities. Assisted companies in their product line review to identify high risk products and chemicals. Managed product-testing and compliance programs for numerous companies. Assisted clients with green chemistry initiatives and addressed green marketing claims.

Exposure Reconstruction/ Occupational Epidemiology

Designed and evaluated studies to simulate and reconstruct historical exposures to address potential worker, consumer, and community exposure to chemicals, including asbestos, nanoparticles, benzene, formaldehyde, styrene, silica, carbon monoxide, phthalates, lead, metals, and a variety of VOCs.

Conducted numerous exposure assessment analyses for use in cohort and case-control health studies, including petrochemical, aircraft, chemical, and agricultural industries. Designed and managed air sampling program to obtain 8-hour, peak and short-term levels for various job classifications to be used in epidemiological studies.

Industrial Hygiene/Air Sampling

Provided reviews of health literature, air sampling methods, and worker exposure data for silica, beryllium, and asbestos and their associated products. Conducted air sampling for numerous compounds, including benzene, other volatiles, oil mists, pesticides, silica, Nano particles, and other particulates in various occupational settings. Audited and reviewed health and safety compliance programs for petrochemical, agricultural, laboratory, biotech, and chemical manufacturing facilities, including review of labeling, Safety Data Sheets, training manuals, safe chemical handling procedures, ventilation, employee training, and chemical inventory procedures. Assessed use of medical monitoring in occupational and community populations.

Environmental Human Health Risk Assessment/Brownfields

Managed numerous assessments of contaminated property for future residential, commercial, and school developments while working closely with regulatory agencies to obtain approval of health-based strategies. Key issues for these sites included soil gas vapor migration, particulate emissions, groundwater transport, and fate modeling. Developed health-based cleanup levels for scenarios, such as residential, commercial, construction, and trespassers. Has successfully worked on sites involving chemicals, such as TCE, PCE, 1,1,1,-TCA, EDB, PAHs, PCBs, arsenic, lead, barium, and mercury.

Air

Managed more than 20 air risk assessments associated with the California Hot Spots Program (AB-2588) for aerospace, hospitals, chemical, and manufacturing facilities, including evaluation of hexavalent chromium, benzene, and propylene oxide. Also performed analyses of large hydrogen sulfide air monitoring datasets to evaluate potential sources and trends within a state.