

Emily Goswami, CIH **Managing Scientist**

Professional Profile

Ms. Emily Goswami is a Certified Industrial Hygienist (CIH) and Managing Scientist in Exponent's Health Sciences Center for Exposure Assessment and Dose Reconstruction. She has more than 8 years of professional experience in human health risk assessment, ecological risk assessment, exposure assessment, industrial hygiene, chemical fate and modeling, statistical data analysis, literature research, and project management.

Ms. Goswami's work includes conducting human health and ecological risk assessments for various sites including a former weapons arsenal, a barium manufacturing plant, several manufactured gas plant sites, several former gold mines, and a former paint manufacturing site involving total petroleum hydrocarbons, polyaromatic hydrocarbons, metals, pesticides, PCBs, explosives, volatile and non-volatile organic chemicals in soil and groundwater, and volatiles and particulates in air. In these risk assessments, she has formulated potential exposure pathways, analyzed site-specific data, developed remediation goals protective of human health and ecological species, and calculated cancer and non-cancer risk values.

Ms. Goswami has designed and conducted several exposure simulations associated with use of consumer products (e.g. dinnerware, PVC products, painted containers, marking pens, and nail polish) and analyzed results for compliance with California's Proposition 65 and Consumer Product Safety Commission guidelines. She has performed probabilistic modeling in order to evaluate exposures to benzene during parts washing activities. She has performed several residential investigations including of air and surface sampling and analysis for mold and other indoor contaminants. Ms. Goswami also has extensive experience assessing the exposure, epidemiology, and toxicology associated with various sources and types of occupational and environmental exposure to various chemicals including asbestos, silica, and benzene.

Academic Credentials and Professional Honors

M.S., Environmental Health (emphasis in Risk Assessment), University of Washington, 2001
B.A., Environmental Science, University of California at Berkeley, 1998

Licenses and Certifications

Certified Industrial Hygienist - Comprehensive Practice, American Board of Industrial Hygiene, 2009

Publications

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

Goswami E, Larson T, Lumley T, Liu L-J. Spatial characteristics of fine particulate matter: Identifying representative monitoring locations in Seattle, Washington. *Air Waste Manage Assoc* 2002; 52:324–333.

Presentations

Goswami E, Malzahn D, Richter R, Sheehan P. Simulation and modeling techniques to reconstruct historical benzene exposures. Platform presentation at the Society for Risk Analysis Meeting, Baltimore, MD, December 3–6, 2006.

Brorby G, Kalmes R, Goswami E, Mowat F, Sheehan P. Evaluating exposures to consumer products. Platform presentation at the Society for Risk Analysis Meeting, Baltimore, MD, December 3–6, 2006.

Sheehan P, Hicks J, Goswami E, Lau E, Greene J, Fedoruk M. Assessment of mechanics' exposure to benzene in mineral spirit solvents during parts washing activities. Platform presentation at the American Industrial Hygiene Association Conference and Exposition, Anaheim, CA, May 21–26, 2006.

Goswami E, Greene J, Sheehan P, Hicks J. Analysis of exposure to benzene in mineral spirit solvents during parts washing and degreasing operations. Poster presentation at the Society of Toxicology Meeting, San Diego, CA, March 5–9, 2006.

Goswami E, Kalmes R. Exposure to formaldehyde during use of a nail care product. Poster presentation at the American Industrial Hygiene Association Conference and Exposition, Anaheim, CA, May 21–26, 2005.

Madl AK, Leung HW, Proctor D, Goswami E, Hays S, Cohen E. Derivation of a RfD for perchlorate: identifying a critical health endpoint and the most sensitive subpopulation. Poster presentation at the Society of Toxicology Annual Meeting, Baltimore, MD, March 21–25, 2004.

Prior Experience

Graduate Student Research Scientist, University of Washington, Department of Environmental Health, 1999–2001
Web Site Coordinator, U.S. EPA Region IX, 1998–1999

Project Experience

Risk Assessment

Conducted a series of risk assessments for a former ordnance and explosives site. Prepared statistical analyses of metals concentrations to determine whether soils were affected by site activities. Developed remediation goals protective of human health and ecological receptors. Also evaluated modeled potential re-suspended dust emissions during remediation of soil for ordnance and explosives. This site is the first former munitions site in California to be granted DTSC approval for unrestricted residential use.

Conducted risk assessment Preliminary Endangerment Assessment of three former gold mines. Evaluated future residential, construction worker, commercial worker and recreational site user scenarios and ecological receptors for exposure to metals in soils.

Conducted risk assessment for a former barium manufacturing facility. Developed risk-based clean up levels for barium, arsenic and polyaromatic hydrocarbons based on site-specific conditions and exposure parameters.

Conducted several risk assessments for the redevelopment of brownfields into open spaces. Developed remediation goals protective of human health under recreational-use scenarios. Performed statistical analyses of arsenic soil concentrations to determine whether present concentrations were indicative of background levels.

Performed GIS analyses for contaminant source areas to evaluate exposure to vapors from contaminants in soil and groundwater and subsequently modeled risk-based clean-up concentrations. Developed clean up levels for soil and groundwater based on estimated indoor concentrations of volatiles from soil and groundwater sources produced by Johnson and Ettinger modeling.

Consumer Product Assessment

Designed and conducted exposure simulations to assess personal inhalation exposure to ethylbenzene during use of marking pens and formaldehyde during application of a fingernail hardening product. Designed and conducted several exposure simulations of product use followed by hand-wiping to measure the potential hand-loading and subsequent oral exposures via hand-to-mouth behaviors. Various products evaluated for lead include painted containers, dinnerware, PVC products, toys, and cable cords. Evaluated experimental exposure results with regard to Proposition 65 and Consumer Product Safety Commission (CPSC) compliance.

Air Quality

Designed and conducted residential indoor air quality investigations to assess the potential exposure to mold and other indoor contaminants.

Collected and analyzed air monitoring data from 40 stations to evaluate potential exposures to particulates, nitrogen dioxide, and sulfur dioxide in Seattle as part of an EPA-sponsored study. Health effects of elderly residents near the monitoring stations were recorded to evaluate toxic responses to the particulate exposures in that area.

Reviewed air quality data for metals, volatile organics, and PCBs in a building near ground zero at the World Trade Center disaster site. Data were assessed for adequacy of detection limits and detected concentrations to determine health protection for re-occupancy.

Asbestos

Provided extensive support to experts in epidemiology, exposure assessment, and state-of-the-art for asbestos-related cases for a variety of chrysotile asbestos-containing products. Evaluated risk of disease and asbestos exposure for a variety of occupations including insulators, plumbers, pipefitters, electricians, railroad workers, farmers, power plant workers, sheetmetal workers, steel workers, bricklayers, carpenters, construction laborers, bakers, TV repairmen, refinery workers and longshoremen. Reviewed product literature, scientific literature, and case specific materials. Worked with experts to create exhibits for trial testimony.

Worked with expert pathologists to create exhibits for trial testimony. Reviewed and analyzed pathology articles related to fiber deposition and clearance, degree of toxicity based on fiber type and size, fiber lung burden and epidemiology. Worked with pathologists to present information in a manner that can teach the jury about pathology.

Benzene

Designed and conducted an exposure reconstruction studies to estimate historical benzene exposures during use of products that contained benzene.

Provided extensive support to expert in exposure assessment for benzene-related cases for a variety of solvent products. Reviewed product literature, scientific literature, and case specific materials.

Chemical Support

Provided toxicological support for two major chemical companies. Researched current toxicological literature to determine representative toxicological values for use in company-wide MSDSs for hundreds of substances. Evaluated toxicity of chemicals to determine whether chemicals should be used and to determine appropriate personal protective equipment, handling procedures, and disposal.

Research Experience

- Graduate Student Researcher: Assessment of exposure and health effects of fine particulates on sensitive sub-populations in the Seattle area, U.S. EPA, University of Washington, 1999–2001

Professional Affiliations

- Northern California Society for Risk Analysis, 2003–present
- Society for Risk Analysis, 2006–present
- American Industrial Hygiene Association, 2005–present
- Genetic and Environmental Toxicology Association of Northern California, 2006–present