

**Valerie A. Craven**  
**Senior Managing Scientist**

**Professional Profile**

Ms. Valerie Craven is a Senior Managing Scientist in Exponent's Health Sciences Center for Exposure Assessment and Dose Reconstruction. She specializes in assessing risk to human health associated with exposure to chemicals in the workplace and environment. She has 13 years of experience in the field of human health risk assessment with a focus on exposure assessment.

Ms. Craven's primary area of interest is leading the scientific aspects of multi-disciplinary litigation cases involving complex scientific issues. Her experience in this area includes tort, bankruptcy, and criminal matters involving asbestos, talc, radon, and chlorinated solvents. She is particularly knowledgeable in the epidemiological, medical, toxicological, and industrial hygiene aspects of exposure to asbestos and the issues that are scientifically debated (e.g., risk of disease at low exposures, differences in risk by fiber different fiber characteristics, criteria for diagnosing asbestos-related malignant and non-malignant diseases). Ms. Craven also has experience conducting deterministic and probabilistic multi-pathway human health risk assessments, especially those involving fish and waterfowl consumption pathways for freshwater, marine, and estuarine environments. In support of these risk assessments, she has researched exposure pathways and designed and performed data analysis for site-specific angler surveys and related studies. She is skilled in statistical analysis and computer programming to support probabilistic risk assessments, including event-by-event exposure assessments. In addition, she has experience preparing feasibility studies for Superfund sites, developing lead and asbestos abatement specifications, and preparing SARA Title III reports. Her project work has supported clients with sites in EPA Regions 2, 5, 8, and 9.

**Academic Credentials and Professional Honors**

B.S., Environmental Engineering, University of Michigan, 1997

Tau Beta Pi

**Licenses and Certifications**

Engineer-in-Training (EIT) certification, April 1997

## **Publications**

Goswami E, Craven V, Dahlstrom D, Mowat F. Domestic asbestos exposures: A review of epidemiologic and exposure data. American Industrial Hygiene Conference and Exposition (AIHce), Denver, CO, May 22–27, 2010.

Gujral J, Su S, Craven V. Prevalence rates of pleural abnormalities among populations with environmental asbestos and non-asbestos exposure. Society of Toxicology 49<sup>th</sup> Annual Meeting, Salt Lake City, UT, March 7–11, 2010.

Kelsh MA, Craven VA, Teta MJ, Mowat FS, Goodman, M. Mesothelioma in vehicle mechanics: Is the risk different for Australians? *Occ Med* 2007; 57: 581–589.

Kinnell J, Bingham M, Hastings E, Ray R, Craven V, Freeman M. A survey methodology for collecting fish consumption data in urban and industrial water bodies (Part 1). *Journal of Toxicology and Environmental Health, Part A*, 2007; 70:477–495.

Ray R, Craven V, Kinnell J, Bingham M, Freeman M, Finley B. A statistical method for analyzing data collected by a creel/angler survey (Part 2). *Journal of Toxicology and Environmental Health, Part A*, 2007; 70:496–511.

Ray R, Craven V, Bingham M, Kinnell J, Hastings E, Finley B. Human health exposure factor estimates based upon a creel/angler survey of the lower Passaic River (Part 3). *Journal of Toxicology and Environmental Health, Part A*, 2007; 70:512–528.

Finley B, Mowat F, Richter R, Brorby G, Craven V, Sheehan P. Evaluation of proposed threshold doses for chrysotile exposure and respiratory disease. Society of Toxicology 44<sup>th</sup> Annual Meeting, New Orleans, LA, March 6–10, 2005.

Goodman M Teta MJ, Hessel PA, Garabrant DH, Craven VA, Scrafford CG, Kelsh MA. Mesothelioma and lung cancer among motor vehicle mechanics: a meta-analysis. *Ann Occup Hyg* 2004; 48(4):309–326.

Goodman M, Teta MJ, Hessel PA, Garabrant DH, Craven VA, Scrafford CG, Kelsh MA. Mesothelioma and lung cancer among motor vehicle mechanics: A meta-analysis. Paper number T14.11. Presented at the Society for Risk Analysis Annual Meeting, December 7–10, 2003.

Finley BL, Iannuzzi TJ, Wilson ND, Kinnell JC, Craven VA, Lemeshow S, Teaf CM, Calabrese EJ, KostECKI PT. The Passaic River creel/angler survey: Expert panel review, findings, and recommendations. *Hum Ecol Risk Assess* 2003; 9(3):829–855.

Wilson ND, Craven VA, Price PS, Paustenbach DJ. Analysis of possible health risks to recreational fishers due to ingesting DDT and PCBs in fish from Palos Verdes Shelf and Cabrillo Pier. *Human and Ecological Risk Assessment: Theory and Practice*. Paustenbach DJ (ed), John Wiley and Sons, New York, NY, 2002.

Wilson ND, Craven VA, Price PS, Paustenbach DJ. Event-by-event probabilistic methodology for assessing health risk of persistent chemicals in fish: A case study. Abstract #1211. Final Program and Abstracts. 40<sup>th</sup> Annual Meeting of Society of Toxicology, March 25–29, 2001.

Wilson ND, Craven VA, Paustenbach DJ, Hays SM, Finley BL, Kerger BD. Assessing risks to nursing infants whose mothers ingested fish containing persistent organic pollutants (POPs): Inadequacy of USEPA default methods and directions for the future. Presented at the 10<sup>th</sup> Annual Conference of the International Society of Exposure Analysis, October 24–27, 2000.

Wilson ND, Craven VA, MacNair DJ, Iannuzzi TJ. Use of angler survey information for probabilistic risk assessment on the Lower Fox River, Wisconsin. Presented at the Society for Risk Analysis Annual Meeting, December 5–8, 1999.

Connor K, Iannuzzi T, Ludwig D, Wilson N, Craven V, Finley B. Health risk assessment of the consumption of sport fish in areas with fish consumption advisories: A case study of the Lower Fox River, Wisconsin. Presented at the Society for Risk Analysis Annual Meeting, December 5–8, 1999.

### **Prior Experience**

Engineer, McLaren/Hart Environmental Engineering Corp., 1997–1998

Technical assistant to Director of Environmental Activities, T&N Industries Inc., 1994–1996

### **Project Experience**

#### *Asbestos*

Managed a large project assessing exposure to an array of asbestos-containing products including spray fireproofing and attic insulation for bankruptcy proceedings. Provided technical assistance on epidemiological, medical, toxicological, and industrial hygiene issues.

Managed a large project researching epidemiological, medical, toxicological, and exposure issues relevant to assessing risk of disease from neighborhood exposure to a vermiculite mine in Montana.

Manage projects assessing risk from exposure to asbestos-containing gaskets from small engines, lawn equipment, industrial valves, etc. using industrial hygiene, epidemiology, occupational medicine, and risk assessment.

Prepare the epidemiological aspects for assessing risk from exposure to asbestos-containing friction materials (e.g., brakes, clutches).

Researched issues relevant to assessing risk from neighborhood exposure from an asbestos product manufacturing facility in Japan.

Researched and recommended the appropriate asbestos clean up requirements for a building neighboring the World Trade Center after the September 11, 2001 tragedy.

### ***Health Risk Assessments of Fish Consumers***

Developed and published method to calculate the exposure factors necessary for a human health risk assessment from raw creel/angler survey data.

Managed a computer model of anglers' behavior to determine potential risk associated with consumption of chemically contaminated fish. Developed appropriate distributions from raw angler survey data for use in the model, which used event-by-event Monte Carlo analysis. Assisted in the analysis of the health risks to the nursing infants of the fish consumers.

Researched the effect of fish consumption advisories on anglers' consumption of fish from waterbodies with the advisories.

Researched all aspects of various human exposure pathways (e.g., fish consumption by anglers, waterfowl consumption by hunters) for a human health risk assessment. Computed site-specific distributions for exposure factors from raw survey data for use in the probabilistic risk assessment. Determined the existence or nonexistence of subpopulations (e.g., subsistence anglers, breastfed infants) within the exposed population.

### ***Talc***

Manage the research into the asbestos content of talc from a mine in Vermont and the malignant and non-malignant health effects to the miners and end-users.

### ***Radon***

Manage the industrial hygiene and risk assessment aspects of a project characterizing risk of lung cancer from household exposure to radon.

### ***Health Risk Assessments of Occupational Groups***

Reviewed epidemiological worker studies to evaluate the presence of a threshold for lung cancer from exposure to hexavalent chromium.

Calculated the potential health risk from exposure to hexavalent chromium in drinking water for a number of exposure scenarios (e.g., shower exposure, drinking water).

### ***Human Health Risk Assessment***

Managed a large project involving calculation of the emissions, air dispersion, doses, and cancer risks associated with downwind neighborhood exposures to chemicals at a rocket testing facility in southern California, including TCE, dioxin, hexavalent chromium, and hydrazines.

Evaluated obesity issues associated with consumption of soft drinks.

Involved in the development of the materials for a multi-pathway, multi-chemical human health risk assessment for a river that is listed as a Superfund site according to EPA's Rags Part D guidance.

Researched and prepared the distributions for a probabilistic calculation of a soil cleanup level for dioxin for a city in Michigan.

Extensively researched the basis of default exposure factor values. Task entailed the review of historic and current regulatory guidance documents and other technical publications to summarize the available exposure data, assess the data adequacy to support development of distributions, assess the representativeness of the default exposure factor values, and identify data gaps. Summarized findings in tabular form to be included in a report that served as guidance to a council charged to direct future research efforts.

### ***Watershed Issues***

Assisted client with the required tasks of a natural resources damages settlement. Participated in numerous meetings that included environmental interest groups, tribal leaders, and local, state, and federal regulatory agencies including the U.S. Fish and Wildlife Service, Attorney General of Michigan, Michigan Department of Environmental Quality, and the Michigan Department of Natural Resources. Prepared minutes from biweekly meetings between the Defendants' and Trustees' project coordinators and semi-annual reports that were used as record of the progress of the project. Participated in monthly meetings attended by local interest groups, city officials, and local regulatory authorities to design boat launches and a nature park to enhance lands for public use.

### ***Regulatory Reporting***

Managed and assisted in the preparation of SARA Title III reports for 1995 and 1996 for several automotive assembly plants. Activities included determining and researching the existence of listed compounds at the plants and developing the appropriate analytical model of each listed compound's pathway through the plants.

Developed appropriate specifications for air monitoring for lead and abatement of asbestos floor tile for demolition of residential properties. Specifications conformed with Housing and Urban Development (HUD) lead-based paint requirements and other pertinent regulatory standards.

### ***Remedial Investigation***

Prepared a feasibility study for groundwater remediation at a Superfund site contaminated with volatile organic compounds. The study compared remedial techniques such as natural attenuation, *in situ* bioremediation, and various pump-and-treat methods based on nine CERCLA-defined criteria.

Coordinated and performed infield surface water and sediment samples for a facility while accompanied by regulatory officials. Results of sampling event indicated landfill operations on the property were not responsible for cyanide concentrations found in media.

Conducted Phase I environmental site assessments for commercial properties in accordance with ASTM standards. Assisted in field work and report writing for Phase II site investigations.

Performed field sampling of both groundwater and soil at commercial properties and Superfund sites.

### ***Health and Safety***

Participated in the Global Loss Prevention System Deployment Project and Liability Excellence Assistance Project for Chevron.

Developed an environmental, health, and safety database that networked all North American plants operated by T&N Industries, Inc (now Federal-Mogul Corporation). The database managed waste stream, worker training, permit, and facility information.

Created a database for preparation of material safety data sheets. Database enabled facility to record and manage the material safety data sheets associated with compounds produced and used by the facility.

### ***Laboratory Work***

Served as a laboratory assistant. Performed metal digestion of soil samples and prepared water samples.

### **Professional Affiliations**

- Society for Risk Analysis
- International Society of Exposure Science
- American Industrial Hygiene Association
- Society for Epidemiologic Research