Julie Panko, CIH

SENIOR VICE PRESIDENT, EXPOSURE SCIENCES
PRINCIPAL SCIENTIST

CONTACT INFORMATION

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PROFESSIONAL PROFILE

Ms. Panko has more than 30 years of experience conducting and managing a wide variety of occupational, environmental, and consumer health risk assessments and is a Certified Industrial Hygienist (CIH). She has focused primarily on evaluating chemical risks from industrial, commercial, and consumer products within the context of various regulatory programs and voluntary initiatives. Some of this work included product lines such as paints and coatings, adhesives, tires, arts and crafts, beauty care, food ingredients and many industrial process chemicals.

Ms. Panko's areas of expertise include quantitative exposure assessment such as retrospective analysis of occupational and community-based exposures to industrial emissions; human health risk assessment for contaminated sites; industrial hygiene program development and implementation; indoor air quality related to industrial, commercial, and residential environments; and product stewardship and sustainability. She has evaluated potential human health risks associated with numerous substances, including benzene, toluene, xylene, acetone, TCE, dioxin, PCBs, mineral spirits, a wide variety of metals, PAHs, perfluorinated compounds, and biologicals including fungi and bacteria.

Ms. Panko has published on the use of chemical fingerprinting and other commercially available tools to evaluate chemical risks associated with a product throughout its life cycle, providing transparent and scientific approaches to evaluating chemical substitutes. Additionally, Ms. Panko is an international expert on potential human and ecological health risks associated with non-exhaust vehicle emissions, in particular tire and road-wear particles.

EDUCATION AND DEGREES EARNED

1987 B.S., Industrial Hygiene, Ohio University

PROFESSIONAL ASSOCIATIONS AND CERTIFICATIONS

2018–present Product Stewardship Society

1996, 2002, 2007, 2012, 2017 Certified Industrial Hygienist #7101, American Board of Industrial Hygiene

1996–present American Board of Industrial Hygiene (ABIH)

1991–present American Industrial Hygiene Association (AIHA)

- Fellow of the American Industrial Hygiene Association (FAIHA)
- Biological Monitoring Committee, 2008–2015 — BEELs Project Team, 2008–2012
- Stewardship and Sustainability Committee, 2008–present
  - Secretary, 2018–2019
  - Vice-Chair, 2019–2020
  - Chair, 2020
  - Past Chair, 2021–2023

1989–present American Industrial Hygiene Association (Pittsburgh Local Section)

- Program Committee Member, 1991
- President-Elect, 2003
- President, 2004
- Past President, 2005
- Director, 2008–2010

2020–present Society of Environmental Toxicology and Chemistry (SETAC), National

2020–present Society of Environmental Toxicology and Chemistry (SETAC), Pacific Northwest; Hudson, Delaware Regional Chapters

SELECTED PROFESSIONAL EXPERIENCE

Risk Assessment

Supported industry trade association efforts to understand the evolving state of knowledge regarding 6PPD-quinone in the environment and its potential risk to ecological receptors and humans.

Directed the development and implementation of an artificial intelligence (AI)-assisted literature search and review of thousands of publications on the topic of micro- and nano-plastics with the aim of identifying high quality papers that can inform environmental and human health risk assessment. A web-based database was developed to assist researchers in searching for existing knowledge by particle size, area of risk assessment, plastic type, exposure media, and toxicity evidence and outcomes.

Evaluated the potential human and environmental health risk associated with trace levels of PFAS in fluorinated containers, including with the manufacturing and downstream users' conditions of use.

Developed an action plan to assist a client in preparing for registration of a new product as an antimicrobial under EPA's FIFRA program. Project involved evaluation of the antimicrobial mechanism of action, existing data on the physical and chemical properties of the product, toxicity information, and data gaps, as well as determination of data needs for a successful registration.

Prepared a state-of-knowledge assessment regarding tire materials throughout the life cycle of a tire, including manufacturing, in-use, and end-of life (ELT).

Assessed the state of regulation for plastic products at the global level, including global agreements through the United Nations and OECD, as well as regional regulations in North America (including various US State-level regulation and Canada Province-level regulations), Europe and Africa (including specific regulations in Denmark, Germany, Netherlands, and South Africa), Japan, South Korea, India, China, and Australia.

Prepared a state-of-knowledge report regarding the potential for human and ecological health risk associated with brake-wear particles in the environment.

Evaluated the fate and transport of tire and road-wear particles in the environment from release on road to transport to estuarial waters.

Designed and directed ambient air sampling programs to quantify tire and road-wear particles (TRWP) in the PM_{10} and $PM_{2.5}$ fractions. These programs included air sampling in several cities in France, the United States, and Japan, as well as London, England, and Delhi, India. These data have been used to characterize human health risk from inhalation of TRWP in the ambient outdoor air.

Evaluated hazard warnings and signage requirements for petroleum refineries, logistics terminals, and retail outlets related to California Proposition 65 regulations.

Determined notification threshold values for air pollutants to be used in the evaluation of fence-line monitoring data at a refinery.

Compiled and reported on the state of knowledge regarding the potential for human health and ecological risk associated with the use of crumb rubber in artificial turf fields and playgrounds.

Developed analytical data packages to support REACH registration of 10 substances used in adhesive products. Work involved determination of appropriate laboratory testing procedures and evaluation of the laboratory data to assess the "sameness" of the tested substances to those already registered under REACH.

Developed and managed an outdoor ambient air monitoring study to characterize the air concentrations of several gaseous and particulate substances and the potential for human health impacts during development and production of an unconventional natural gas well site in Middlesex Township, Pennsylvania. This project involved establishing four stations located upwind and downwind of a well pad for air monitoring of the baseline, as well as where monitoring was conducted during baseline conditions prior to development of the well pad and operational phases, including completions, dewatering, flowback, production, and initial well-pad deconstruction activities. Constituents of interest included real-time continuous monitoring of PM_{10}, $PM_{2.5}$, total VOCs, NO_2, CO, and H_2S. Routinely collected samples for speciated VOCs over various time periods, including 15 minutes, 8 hrs, and 24 hrs, over the course of the project.

Evaluated potential for air impacts and human health risk associated with construction and development of an unconventional natural gas well pad in western Pennsylvania. This project involved analysis of local air monitoring data and evaluation of well-site activities and potential air emissions, critical evaluation of the published literature on health risks associated with natural gas development, and presentation of the analysis at a local zoning board hearing.

Evaluated the potential health risk associated with the use of 4-tert-octyl phenol in a rubber resin compound throughout the life cycle of the rubber product.

Conducted a comparative analysis of 32 publicly available chemical hazard assessment tools to characterize the strengths and weaknesses of each, and to describe the ability of each tool to generate a risk profile for a chemical or product.

Evaluated the contribution of various anthropogenic sources of black carbon to the ambient outdoor air, including an in-depth assessment of EPA's MOVES model and inputs for non-exhaust vehicle emissions.

Provided senior technical review of endocrine disruption testing of two chemicals used in rubber products. This testing was conducted to fill data gaps for each chemical and followed the USEPA Endocrine Disrupter Screening Program guidance.

Developed and implemented an ambient air monitoring program for a school district in southwestern Pennsylvania, to assess potential risk to children on the campus due to hydraulic fracturing activities at a nearby gas-well installation. The program included installation of direct-reading instruments to measure, in real-time, VOCs and flammable gases, placement of a local weather station to record meteorological data, and collection of ambient air samples to identify and quantify specific VOCs. The program included baseline conditions evaluation and air monitoring/sampling during fracturing of the well and the flaring phase prior to gas production.

Managed a project to assess the cardiopulmonary hazard potential of TRWP. The work involved the collection and subsequent size separation of TRWP for use in a nose-only subacute inhalation rodent study. As part of the overall hazard evaluation, a comparative *in vitro* study was also conducted to assess the relative potency of TRWP to other known substances and their potential to induce adverse effects.

Managed the development of outdoor air monitor concentration objectives for an MGP site prior to remediation activities. The MCOs were developed as heath-based levels designed to be protective of people working, living, and recreating in the areas adjacent to the site.

Developed exposure scenarios and a risk characterization under REACH for a new chemical to be placed on the European market in 2011. Unique aspects of this assessment include the classification of the chemical as a compound of unknown, variable composition.

Managed and directed a project involving chemical designation requirements for a Fortune 100 firm. This included updating relevant international chemical regulations, determining chemicals affected by the regulations, and establishing the restriction of use for certain chemicals.

Evaluated the PBT assessment (for substances that are persistent, bioaccumulative and toxic) of an antioxidant compound used in rubber polymer applications that underwent evaluation in Canada, to identify limitations of the assessment and identify data gaps that, if filled, would reduce the uncertainty of the assessment and provide a more scientific basis for the classification.

Developed a chemical review program for a Fortune 100 manufacturing firm to provide a scientific basis for accepting or rejecting new proposed raw materials at various stages in the research and development process. This program included consideration of the potential chemical risks associated with the manufacturing, in-use and end-of-life portions of the product's life cycle.

Evaluated outdoor air dioxin emissions from a petroleum refinery and potential impacts on the surrounding community.

Managed and directed technical research for an international consortium of tire manufacturers to assess sustainability issues for their global industry. The project has involved review of all available data to assess potential human and environmental health risk issues associated with the primary raw materials and potential releases to the environment from the product manufacturing and use sections of their products' life cycles. The objective of the project is to determine the state of knowledge regarding human and environmental health and exposure

information, identification of data gaps, and development and implementation of a research program to acquire sufficient information to conduct a thorough environmental health risk assessment.

Managed and conducted independent, third-party peer review of risk assessment reports and ambient air monitoring data on behalf of the Nevada Department of Conservation & Natural Resources, Division of Environmental Protection (NDEP), for a large remediation site in Henderson, Nevada.

Managed and directed evaluation of a PCB-impacted high-rise commercial office building in Japan. Work involved sampling design and risk assessment protocol to evaluate the potential for human health risk associated with PCB-impacted surfaces within the building and building systems.

Provided technical oversight and direction for development of exposure scenarios associated with tire and general rubber goods manufacturing on behalf of the European Tyre and Rubber Manufacturing Association (ETRMA). The exposure scenarios support REACH compliance efforts by the chemical suppliers to the tire and rubber manufacturers.

Managed a historical exposure reconstruction of residents in Ohio and West Virginia who were exposed to perfluorooctanoic acid (PFOA) from ambient air releases by a fluoropolymer manufacturing facility that operated in the area for 53 years. The retrospective exposure analysis required the estimation of historical releases to the environment using a mass-balance approach, followed by quantification of PFOA in various environmental media using air dispersion, soil, groundwater, and surface-water models. The results of the exposure analysis provided a picture of likely residential exposures to PFOA in the nearby communities over time.

Managed a historical exposure reconstruction of residents living near a former manufacturing facility in New York, as part of litigation brought by plaintiffs who claimed medical impairments due to their presumed exposure to TCE via indoor vapor intrusion from affected groundwater. The retrospective exposure analysis involved modeling likely historical groundwater concentrations and subsequent indoor vapor intrusion. The result was a bounding estimate of likely TCE exposures over time.

Assessed potential for exposure to TCE in a school as a result of vapor intrusion from contaminated groundwater. The assessment included evaluation of indoor air monitoring data, analysis of TCE plume migration, and modeling of groundwater and indoor air to predict future TCE concentrations.

Managed and directed various human health risk assessments of residential and commercial properties located near former manufactured gas plant (MGP) sites. Evaluated environmental data related to the former site and community areas and conducted human health risk assessments of individual properties, including environmental fate and transport modeling of soil and groundwater contaminants. Provided support to legal counsel in expert deposition and prepared expert reports for the defense.

Managed and directed a human health risk assessment of remedial actions to be taken at a former manufactured gas plant (MGP) site. Characterized potential risks to the community resulting from excavation of affected soils and historical operations structures. Also determined acceptable fence-line air concentrations of site chemicals of concern for use in comparing perimeter ambient air samples to be collected during site remediation.

Managed and directed exposure assessments to evaluate children's exposure to benzene, toluene, xylenes, and acetone. These projects are being conducted on behalf of the Benzene, Toluene and Xylene Exposure Assessment Voluntary Children's Chemical Evaluation Program (VCCEP) Working Group of the American Chemistry Council (ACC) and the ACC Acetone VCCEP Panel. The VCCEP projects involved the development of specific exposure scenarios to assess the manner in which children and prospective parents may be exposed to chemicals in their daily life. Contributions from the ambient outdoor air and indoor residential and school settings, as well as microenvironments through the use of consumer products, were accounted for and quantified. Presented results to a technical peer-review panel sponsored by the USEPA.

Assessed potential dioxin exposures from a former wood-treating facility in Alabama, including evaluation of environmental samples of soil, sediment, and house dust, as well as human blood analysis for dioxin compounds.

Assessed potential exposures to formaldehyde in a residential setting. Project involved claims of alleged exposure to formaldehyde from kitchen cabinets and subsequent adverse health effects. Work involved evaluation of an urban home setting and indoor air modeling of formaldehyde from theoretical releases via off-gassing from the cabinets.

Provided technical assistance on a litigation project involving historical airborne releases of dioxin from a secondary copper smelter. Developed strategy for the company in terms of assessing historical exposures, educating the client on the usefulness of biomonitoring for historical exposure assessment, and general toxicity and exposure assessment strategies for managing potential dioxin exposures.

Directed and managed the evaluation of a building affected by the collapse of the World Trade Center in September 2001 on behalf of an insurance company. This project was conducted as part of litigation brought by the building owner against their insurance company. The claim was that WTC dust had entered the interstitial wall cavities of all partition walls, thereby requiring a gut rehabilitation of the building. Analyzed more than 25,000 environmental samples, with an associated 100,000 chemical analyses, assessment of human health risks under a variety of scenarios, and development of an original WTC dust signature to determine the potential for WTC dust impacts throughout the building. The suit was settled following formal mediation with the building owner.

Managed a human health risk assessment for a former integrated iron and steel facility in New York. Evaluated more than 104 Solid Waste Management Units (SWMUs) and 5 water courses for human health risk based on the chemical constituents identified at the site. Determined health-protective remediation goals for chemicals of concern in compliance with the EPA's Administrative Consent Order (ACO). Primary chemicals of concern were benzene in groundwater and PAHs related to various process waste streams and coal tars. Both site-wide and SWMU-specific human health risk assessments were conducted. Interacted with both USEPA Region 2 and the New York State Department of Environmental Conservation (NYSDEC) as progress was made in moving the site from closure in the RCRA Corrective Action Program to redevelopment within NYSDEC's Voluntary Cleanup Program.

Managed a human health risk assessment for a former waste deposit area at an integrated iron and steel manufacturing facility in Indiana. This risk assessment was performed at the request of USEPA Region V to assess potential human health risks, if any, associated with exposure to chemical constituents detected in the waste material. The property was proposed to be preserved as a natural habitat, with possible use as an environmental education center for the long-term study of restoring industrial lands for natural habitat. As such, this risk assessment focused on potential exposures to future site users, including an environmental educator and environmental student, as well as a trespasser. Unique challenges included exposure frequencies and durations atypical of commercial/industrial and residential scenarios. Twenty-one constituents in the waste material were evaluated quantitatively for potential human health hazards via direct contact with the sludge, including inhalation of sludge particulates and inhalation of vapors.

Managed and conducted independent third-party peer review of risk assessment reports on behalf of the Pennsylvania Department of Environmental Protection (PADEP) when they seek external peer review of risk assessments that have been submitted for sites undergoing closure through the Pennsylvania Land Recycling Act (Act 2). The reviews involved the evaluation of the site-specific risk assessments for scientific validity and completeness. Examples of risk assessments reviewed include those for a former steel slag landfill, former petroleum products storage facilities, gas stations, and miscellaneous manufacturing sites.

Managed the development of a database of exposure parameters to be used in conjunction with various reference scenarios to estimate potential monomer exposures to end users of products containing acrylate/methacrylate polymers. This project was conducted on behalf of the Basic Acrylic Monomer Manufacturers/Methacrylic Producers Association (BAMM/MPA). The database contained over 300 exposure parameters that can be used in conducting exposure assessment using various exposure assessment models, including Promise, EASE, Consexpo, Wall-Paint Exposure Model (WPEM), and others.

Provided review and comment to the Western States Petroleum Association on a diesel school bus exposure study. The study focused on the nature and extent of children's exposure to diesel-related pollutants while commuting to school.

Conducted a human health exposure assessment to evaluate the potential for residential exposure to elemental mercury vapors from an indoor release of mercury. The primary objective of the project was to determine appropriate screening criteria for use in deciding the need for further evaluation and/or remedial activities in a home. In support of the criteria determination, a mathematical model was developed that could be used to predict elemental mercury vapor concentrations over time after an indoor release. Included in this model are a mercury emissions rate module and an indoor air quality module. The exposure assessment also included a review of USEPA's elemental mercury inhalation reference concentration (RfC), case studies from the scientific literature, and screening criteria used by various governmental agencies for decision making.

Evaluated historical industrial hygiene data for the purpose of exposure reconstruction, participated in a retrospective epidemiology study of workers to determine lung cancer mortality rates, and assisted in dose-response modeling to determine the increased risk of lung cancer from exposure to hexavalent chromium. Studied nearly 30 years of industrial hygiene data and employment records for more than 1000 workers. Estimated lung cancer potency of hexavalent chromium using cancer dose-response modeling. The results serve as a primary study in OSHA's revised Permissible Exposure Limit (PEL) for hexavalent chromium

Participated in the development and presentation of an alternative to USEPA's inhalation reference concentration (RfC) for hexavalent chromium. Specific tasks included preparation of a summary document detailing the literature review, selection of critical studies, selection of critical effect, compilation of benchmark dose-response modeling results, and derivation of RfC based on applicable uncertainty factors. The important aspect of this project was demonstrating that hexavalent chromium inhalation toxicity standards should differentiate between chromic acid (mostly an occupational exposure) and chromate particulates typically found in the environment. The alternative value was reviewed, critiqued, and approved by an independent expert panel and has been published on the International Toxicity Estimates for Risk (ITER) internet database.

Participated in risk assessments for three chromium-impacted sites in New Jersey. Identified chemicals of interest (COIs), evaluated the hazard potential for each, developed an exposure scenario and characterized risk. Prepared public relations fact sheet describing the site investigations conducted at various contaminated sites. Also, for one of the sites, calculated toxic equivalency factors for PCB congeners found in contaminated river sediments and compared sediment and biota data to those of a food-web model, to better refine the human health risk assessment.

Conducted a human health risk evaluation of a residential population potentially exposed to volatile and explosive vapors present in their homes as a result of a contaminated groundwater aquifer. The contaminated aquifer was a result of a former oil refinery and fuel storage facility located in Heath, Ohio. Conducted air monitoring inside basements or crawlspaces of homes located above the contamination plume, and also in homes outside the bounds of the plume. Extensive risk communication was conducted during resident interviews; results were reported and toll-free hotlines established in conjunction with the local health department.

Industrial Hygiene

Evaluated industrial hygiene data to characterize worker exposure to ortho-toluidine during chemical manufacturing.

Evaluated indoor air cleaning devices used for airborne biological contaminants (i.e., Covid virus) for operational performance when used in school classrooms.

Conducted a retrospective exposure assessment of a gasoline station attendant to benzene during pumping of gas and other activities at the gas station.

Conducted a retrospective exposure assessment of aerospace workers to hexavalent chromium to support a lung cancer risk evaluation of the worker cohort.

Evaluated occupational exposures to phthalic anhydride In the chemical manufacturing industry. The project was conducted on behalf of phthalic anhydride manufactures to assess existing data sets and determine the utility of the data to support EPA's exposure assessment for the manufacturing condition of use as part of the agency's TSCA Risk Evaluation for phthalic anhydride.

Evaluated potential occupational exposure to hexabromocyclododecane (HBCD) from its prior use as a flame retardant in certain building insultation materials during construction and demolition conditions of use.

Developed conceptual exposure model and evaluated occupational and potential consumer exposures to 1,3-butadiene in the chemical manufacturing and selected downstream user industries. The project was conducted to provide exposure measurement data to EPA in support of the agency's TSCA Risk Evaluation for 1,3-butadiene.

Evaluated nearly 2,000 formaldehyde air sample results to characterize worker exposures to formaldehyde in the tire manufacturing industry. This project was conducted to provide industrial hygiene data to EPA in support of the agency's TSCA Risk Evaluation for formaldehyde.

Conducted a retrospective exposure assessment for aircraft manufacturing workers to hexavalent chromium. This project involved the use of site-specific and industry-wide industrial hygiene data to characterize exposures to workers during various activities, including painting, sanding, assembly, and anodizing/electroplating.

Evaluated adequacy of safety data sheets and associated hazard classifications for a variety of chemicals in adhesive and coating products.

Evaluated the appropriateness of various products used to disinfect airplane cockpits and cargo areas to protect pilots from the virus that caused Covid 19 disease.

Conducted a lead exposure assessment of workers in a semi-conductor fabrication facility. Focused on dermal and incidental ingestion routes of exposure and included the collection of nearly 300 surface wipe samples, calculation of daily intake via skin contact and ingestion for 14 different worker exposure groups, and modeling of blood lead levels using EPA's adult lead model.

Evaluated the potential for exposure to benzene for laboratory workers at a chemical manufacturing facility from use of reagent-grade benzene.

Evaluated the potential for chemical exposures of a worker employed as a printer who used ink systems designed to print on flexible packaging.

Evaluated the potential for worker exposures to trace chemicals in fire suppression foam subsequent to deployment in an aircraft hangar during aircraft manufacturing.

Provided risk communication to employees at an aircraft manufacturer related to potential for exposure to cadmium released as dusts or fumes created from grinding, sanding, welding, cutting, or heating cadmium-plated parts. As part of this project, a Frequently Asked Questions (FAQs) document was prepared to help the workers understand where exposures might occur in the workplace, what the health effects are from cadmium exposure, and ways to protect themselves and minimize exposures.

Evaluation of workers' exposure potentials to chemical components of a flavorant used in pet foods. Full-shift and short-term exposures were measured during weighing of dry ingredients, dispensing and weighing of liquid ingredients, transfer of flavor compound to mixing vat, and mixing and processing of food.

Evaluated the potential for indoor mold sources in private residences associated with a university's housing system. This project involved review of data collected by several IAQ consultants.

Conducted indoor air monitoring for formaldehyde in a private residence to assess potential for exposure from installation of injectable polyurethane foam into an existing structure.

Directed the development of an exposure assessment system to characterize chemical exposures and physical hazards such as noise to workers in a large petroleum refinery. Project included review of the refinery chemical inventory for both produced and used chemical products, preliminary assignment of similar exposure groups, prioritization scheme for chemical hazards based on NIOSH exposure-banding protocols, development of an electronic tool to provide overall risk rankings, and design and implementation of a qualitative exposure assessment program.

Provided senior oversight and technical review of an industrial hygiene protocol to assess worker exposure to airborne cobalt in anticipation of new occupational exposure limits (OELs) that have been proposed to be protective of lung cancer. Project involved evaluation of analytical methods and sampling strategies necessary to confidently quantify very low amounts of cobalt in air.

Evaluated the adequacy of a finished wood product safety data sheet (SDS) with respect to hazard warnings for formaldehyde, including determinations of trace quantities and potential for exposure from use of the product.

Designed and directed an observational study of workers handling tires to determine hand-to-mouth contact frequency. Observed workers at a tire warehouse and several tire service centers. Used the data to assess worker exposure to California Proposition 65 chemicals from tires.

Designed and directed a metal fume exposure assessment of welders, non-welder metal workers, and bystander employees in a small metal fabrication facility. Personal and area air samples of specific metal fumes and total and respirable dust were collected and analyzed to characterize the magnitude of exposures.

Evaluated more than 300 refinery company SDSs for intermediate and finished products to identify potential duplicates and outdated versions. This project involved compilation and analysis of SDSs from three refinery companies following merger/acquisition, to determine whether products were the same based on disclosed hazardous ingredients by CAS # and hydrocarbon stream identifiers.

Directed industrial hygiene field team in assessing biological contamination of a data center resulting from sewage pipe backup.

Provided senior oversight on an evaluation of benzene exposures at a liquefied natural gas facility, including onsite air monitoring and development of a benzene compliance program.

Evaluated potential for worker exposure to hexavalent chromium associated with gas turbine equipment removed from service during a routine outage at a power plant and refurbishment of the equipment at a machine shop. Also assisted the turbine manufacturer with risk communication and outreach to affected employees

Directed a field team of industrial hygienists during turnaround operations at a petroleum refinery. Characterized chemical exposures, including various hydrocarbons, asbestos, welding fumes, silica, hydrogen sulfide, nickel carbonyl, and hydrogen cyanide, as well as various safety issues such as PPE, confined-space entry, and noise.

Evaluated potential chemical exposures of operating-room personnel during various surgical procedures. Employed various air sampling techniques to identify and quantify the chemicals present in surgical smoke plumes that reach the breathing zone of the worker.

Assessed the potential for worker exposure to barite during unloading operations at a storage tank on an unconventional natural gas well site. Used mathematical models to estimate air concentrations of barite and evaluate potential health risk associated with the exposure.

Evaluated the potential for worker exposure to mold following water intrusion into several buildings on a company's headquarters campus. Inspected buildings and offered recommendations for remedial options and post-remediation air sampling for biologicals. Developed and executed employee risk communication plans, including information sheets and in-person staff meetings, to address questions regarding potential for health risk.

Managed and provided technical direction for toxicology summaries of various constituents in petroleum streams. The summaries provided supplemental information on the Safety Data Sheets for the products.

Conducted a proactive assessment of the potential for legionella contamination of a potable water system in a hotel that often houses immunocompromised individuals during treatment at a nearby hospital.

Prepared an internal corporate standard for the adoption of occupational exposure limits for a large industrial client. Although there are federal and some state-mandated occupational exposure levels (OELs) for a limited number of chemical substances, various non-regulatory organizations also develop OELs that may vary significantly in terms of the absolute value and the scientific approaches used to establish them. Because no single organization has developed OELs for all chemicals used at company sites, and because reliance on OELs set by only one organization might not be appropriate, a standard was developed to establish a uniform and transparent system to select internal OELs to be used at the company sites.

Evaluated the contamination of a cooling-water tower that was part of a new HVAC system serving a large technology data center. Collaborated with the building owner, HVAC contractor, and company operations director to verify that the building HVAC system had not been compromised.

Evaluated the potential for worker and building occupant exposures to crystalline silica during and after installation of off-spec product. This project was initiated after customers observed excessive dust in their work spaces following installation of a building material. Subsequent to company investigations, it was determined that off-spec product had been installed in certain locations. Therefore, to understand potential human health risk and the possible need for risk management measures, personal and area air sampling was conducted to evaluate potential exposures of the installers to crystalline silica during simulated installation and removal activities with the affected products.

Evaluated worksite conditions and potential for worker exposure to chemicals at a natural gas well site in West Virginia.

Directed and managed baseline exposure assessments at six petroleum refineries. Project involved qualitative and quantitative assessments of chemical and physical stressors for all occupations throughout the refinery, development of similar exposure groups, and qualitative ranking of risk by job category. The qualitative assessment included review of processes and interviews with representatives from each job title to assess exposure duration and frequency of routine operations and specific work tasks.

Evaluated the potential for worker exposures from installation of two building material products with different quartz contents. Personal and area air sampling was conducted to evaluate potential crystalline silica and mineral wool fiber exposures of the installers during simulated installation and removal activities with the two different products. This information was used to determine labeling requirements for the products.

Evaluated workplace conditions at a flavoring and fragrance manufacturing facility to characterize the adequacy of engineering controls with respect to minimizing employee exposure to diacetyl, acetic acid, acetoin, acetaldehyde, butyric acid, and benzaldehyde in a mixing room and during packaging of products. Assessed the knowledge over time of the health hazards associated with the chemicals and various aspects of hazard communication, including safety data sheets and labels.

Evaluated the indoor environmental quality of a university research lab and office building following a fumigation project involving chlorine dioxide gas for mitigation of pinworms. The purpose of the evaluation was to examine the property conditions associated with ongoing employee health complaints and to determine whether the space could be reoccupied. Measured indoor air quality (IAQ) parameters, including temperature, relative humidity,

carbon dioxide, carbon monoxide, and ultrafine particles. Surface-dust evaluation included measuring the pH of various surfaces within the offices and analyzing tape-lift samples for particle characterization.

Performed a health risk evaluation of office space leased by a medical insurance company. The purpose of the evaluation was to examine the property conditions that may have been associated with prior employee health complaints and to determine whether the office space is ready for re-occupancy. This study included an evaluation of the HVAC system, review of pesticide applications, measurement of indoor air quality parameters, air sampling for VOCs and particulates, and characterization of surface dust on desks, chairs, carpet, filing cabinets, HVAC system components, and above ceiling tiles that made up the return-air plenum.

Directed and managed a retrospective exposure assessment of workers potentially exposed to dioxin and furans from contamination of an imported raw material. Assessed product testing data, historical work practices, engineering controls, and worker PPE. Risk communication sessions were held with employees on each shift to inform them of the product contamination and discuss potential health risks associated with exposure to dioxin and furans. Subsequently, designed and implemented a biomonitoring program for workers who requested testing.

Technical lead on an evaluation of worker exposure to dioxin and furans from ball clay in a manufacturing environment, including both inhalation and dermal routes of exposure. Collected personal air samples using a mini-polyurethane foam (PUF) sampling train, and samples were analyzed using modified method TO-9. Dermal exposure was assessed through collection of wipe samples from accessible surfaces in various work areas.

Provided technical oversight/direction for an assessment of occupational exposure assessment to nano-sized particles of carbon black and amorphous silica. This project involved development of novel sampling techniques and analytical methods to understand the potential for exposure.

Global assessment of the design, management, and implementation of a chemical risk management program for a multi-national tire manufacturing company. Reviewed written corporate-level programs and exposure assessment tools, as well as on-site audits of representative facilities.

Evaluated worker exposures to asbestos and various chemicals associated with tire manufacturing operations of a factory in Europe. Conducted a retrospective exposure analysis, including assessment of operations involving talc, reactive chemical substances, and rubber curing fumes.

Studied worker exposures to isocyanates in connection with a roof replacement job where roofing adhesive leaked into the occupied space because of gaps in the roof structure. Reviewed the isocyanate literature and evaluated the possible emission rate of isocyanates from the adhesive product.

Conducted a retrospective evaluation of potential benzene exposures from the use of paint strippers containing trace amounts of benzene.

Principal-in-charge of a benzene exposure reconstruction for refinery workers in a petroleum company. This project involved multiple refineries and the evaluation of more than 30 years of industrial hygiene exposure measurements from each refinery. Benzene exposures of workers in various jobs/locations within the refineries were quantified by evaluating short- and long-term exposures.

Conducted a retrospective quantitative exposure assessment of benzene concerning a diesel mechanic who worked at an outside repair yard. Evaluated the published literature regarding exposures of diesel mechanics and estimation of inhalation and dermal exposure to benzene from use of gasoline in a bucket while performing manual parts cleaning.

Conducted a retrospective quantitative exposure assessment of benzene concerning a contract boilermaker/ pipefitter who worked at oil refineries and petrochemical plants. Reviewed the published literature regarding potential benzene exposures over time and evaluated the company's health and safety program.

Retrospectively evaluated the potential for benzene exposure of mechanics using a remote-reservoir parts washer containing recycled solvent. Evaluated historical company documents regarding the benzene content of their product over time, developed exposure scenarios to represent the historical workplace conditions, and conducted mathematical modeling of potential benzene exposure via inhalation and dermal contact. Assessed the state of the art of hazard communication for the solvent, including safety data sheets and labels.

Conducted retrospective quantitative exposure assessment to benzene for an operator at an aerosol can manufacturing facility. This project involved the use of typical industrial hygiene exposure models, along with an understanding of the potential sources of exposure to solvents used as coating agents and cleaners, the historical benzene content of the solvent products, and process-specific information related to the operator's activities.

Conducted a retrospective quantitative exposure assessment of an aircraft painter's exposure to benzene. Used typical industrial hygiene exposure models, along with an understanding of aircraft-painting procedures, products used, and ventilation characteristics of the aircraft hangar in which the painter performed his duties.

Retrospectively evaluated the potential for a pressman to be exposed to benzene during use of printing solvents while working on five-color and single-color presses. Exposures evaluated included application of solvents to the rubber blankets, plate washing, roll cleaning, ink-fountain cleaning, and gumming of plates.

Evaluated potential benzene exposures of workers using trace-benzene-containing products. Conducted a comprehensive search of the published and gray literature and quantified exposures using measured data when available, modeling exposure concentrations when studies involving specific solvent-based products were not available. Results of the project indicated that, in most instances, workers using petroleum-based solvents in which the benzene content of the product is less than 0.1% have not been exposed to benzene at levels exceeding the OSHA PEL as an 8-hr TWA.

Managed and directed exposure reconstructions for workers exposed to benzene from use of a rust removal/penetrant product. Reconstructed activity and product use patterns of the workers in various work environments, used simulation study data and indoor air models to understand likely airborne concentrations of benzene, and combined the exposure data with work history information to determine cumulative benzene exposures.

Managed and provided technical direction on a litigation support project involving remediation of a building in Lower Manhattan following collapse of the Word Trade Center towers on September 11, 2001. The project involved the analysis of approximately 100,000 environmental samples collected from the building, interpretation of the sample results, preparation of a human health risk assessment, and critical review of the building owner's selection of remediation measures.

Participated in a simulation study to understand potential asbestos exposures while unpacking boxes of asbestos brake shoes and pads. Work involved the oversight of industrial hygiene sampling technicians and the measurement of air exchange rates in the building.

Participated in a simulation study conducted to understand potential asbestos exposures during removal and repair of asbestos brakes on historical automobiles. Work involved oversight of industrial hygiene sampling techniques and the measurement of air exchange rates in the building.

Participated in a study of biological markers of exposure and effect as part of litigation support for a rubber polymer manufacturer. Evaluated airborne exposure to 1,3-butadiene in relation to previously identified biomarkers of exposure (hemoglobin adducts and urinary metabolites) and hypothesized biomarkers of effect (hprt mutations). The purpose of this work was to support the client in anticipation of legal proceedings following a study of their workers by an independent researcher. Specific tasks included evaluating and commenting on the outside research team's study protocol; industrial hygiene oversight of the study, including collection of air samples for 1,3-BD, and urine and blood samples for the biomarker evaluations; and risk communication to the workers regarding the results of the study.

Managed and directed indoor air quality assessments on behalf of an international bank in their leased spaces at One Liberty Plaza and One World Financial Center following the collapse of the World Trade Center towers on September 11, 2001. Quantified indoor surface and airborne asbestos fibers, particulates (PM2.5, PM10, and ultrafines), lead, chromium, dioxin, PCBs, and mold. More than 250 samples were collected to evaluate the space prior to reoccupancy and in support of ongoing ambient indoor evaluations. Unique challenges to this project were numerous and included negotiation with building owner and insurance carriers for clean-up remedies; defining "contaminated"; risk communication to employees regarding EPA data, NYC Department of Health Data, and news reports; HVAC system operations/failures; and education of company executives in the evaluation and control of indoor air quality.

Managed and served as technical lead on more than 50 indoor air quality investigations, including those in commercial spaces (banks and offices), industrial facilities (chocolate manufacturer and printing operation), schools, and residential buildings (apartments and homes). Occupant complaints have included occupational asthma, odor annoyances, alleged increased cancer incidences, and general sick-building syndrome. The investigations included air sampling for typical indoor air quality indicators (CO, CO_2, temperature, and humidity), ventilation system assessments, microbiological air and surface sampling, legionella sampling in potable and non-potable water systems, medical record reviews, and risk communication.

Provided expert witness testimony to assist in the defense of a school district in a legal complaint regarding mold contamination of a school and the potential health risk to a child. Reviewed plaintiff's expert's depositions and results of indoor air quality studies performed at the school, and submitted a written opinion regarding the remediation efforts to address indoor mold contamination.

Investigated odor complaints from offices within the Pentagon following reconstruction of the wedge damaged during the terrorist attacks of September 11, 2001. Odors were found to be originating from the floor level, and further investigation revealed mold growth beneath the carpet floor tiles. Project included sampling of the tiles to confirm mold growth and designing remediation strategies to remove the affected materials and restore the office spaces for use by Pentagon staff.

On behalf of a private banking institution, investigated the extent of potential mold contamination in a private residence to determine whether remediation strategies were necessary. Reviewed previous testing results, conducted building walk-through with remodeling contractors, and some completed additional testing of building materials for mold contamination.

Managed and directed an investigation of a potential Legionellosis case involving an employee working in a bank building. Work included sampling of building's water systems for legionella contamination, design of appropriate cleaning protocol for the non-chemical water treatment systems in the award-winning "green" building, and follow-up monitoring of cooling towers.

Managed and provided technical oversight for development of an indoor air quality monitoring program to evaluate the potential for indoor air quality impacts during application of an acrylic roofing sealant to a large, five-story, award-winning "green" office building. To address potential complaints by building occupants, monitoring was performed for sealant chemicals with low odor thresholds.

Managed and led a team that designed an indoor air quality sampling program to address employee complaints of airborne carpet fibers negatively affecting building air quality. Work on this project included collection of samples to compare the air concentration of fibers in the complaint area versus a background area, using phase contrast microscopy and polarized light microscopy to compare the composition of airborne fibers to that of a bulk carpet sample.

Served as technical lead for a team performing an indoor microbiological study of the potential for indoor mold and other aspects of indoor air quality in the building to affect the health of students, teachers, and administrators. Results of the sampling were used to advise the school district in appropriate remediation of building materials and improvements to the ventilation system.

Served as technical team leader on the development of an Indoor Air Quality Training program for a county school system in Tennessee. The training included modules for administrators, teachers, and janitors, as well as a module for school maintenance staff.

Provided senior technical review of indoor air quality projects for the El Paso Independent School District. Work conducted for this client included indoor air quality evaluations at various district-operated facilities, including elementary schools, middle schools, high schools, and ancillary management offices and support buildings.

Conducted a comprehensive indoor environmental quality survey at a research/data processing facility in response to employee concerns of a perceived increased rate of cancer among co-workers. The project involved implementation of an indoor air quality (IAQ) screening, including a ventilation evaluation, air sampling for typical IAQ indicators, review of chemical usage in the building, and review of selected employee death certificates to determine cancer type. Following the building evaluation, an employee communication seminar was conducted to discuss findings of the survey and various cancer risk factors. The employee concerns were alleviated through the seminar, allowing work in the facility to resume.

Conducted an indoor air quality evaluation at a chocolate manufacturing facility in response to an employee worker's compensation claim of occupational asthma. The scope of the project included a ventilation system review, IAQ indicator screening, review of employee medical test results and lifestyle characteristics, and microbiological air and bulk sampling of suspect liquid material and solid surfaces within the ventilation system of one of the employee's work areas. The results of the IAQ evaluation and medical records review indicated that the workplace was not the likely source of the employee's asthma.

Performed an IAQ screening of a mid-rise office building in downtown Nashville to determine whether the building exhibited any conditions that could be a source of future complaints from building occupants. The screening consisted of a comprehensive HVAC system review and estimation of % outside air to the occupied spaces. Also, measurements of typical IAQ indicators were made and helped to verify the results of the HVAC system review. Additionally, sources of potential chemical exposures, including a photo-developing center, were evaluated.

Evaluated the indoor air quality of office space in Nashville. The purpose of the study was to verify/compare results obtained by a previous IAQ assessment of the space. The project involved the measurement of typical indoor air quality parameters, HVAC system evaluation, air sampling for volatile organic compounds, and bioaerosol sampling. Follow-up work involved coordination with the building's HVAC contractor to evaluate the delivery of outside air to the indoor space. The results of the study indicated that the HVAC system was performing as designed, but that modifications to the interior space may affect localized performance. Other test results refuted the findings of the previous study.

Managed an exposure reconstruction conducted in support of a paper manufacturer for a potential product safety case. This project involved an exposure assessment of potential respiratory and skin irritants associated with standard white copy paper. A simulation study of the alleged exposure scenario was conducted, and air samples were collected in an effort to identify any potentially responsible chemical agents. Samples of the paper were also analyzed to attempt to correlate air sampling results to chemical constituents of the paper.

Evaluated the potential for elemental mercury exposure to demolition workers at a former automotive dynamometer testing facility.

Served as the Health and Safety Manager for 200+ site investigation/remediation projects. As the HSM, responsibilities included employee training, preparation of health and safety plans, on-site monitoring, and accident investigation.

Conducted air monitoring for airborne asbestos before, during, and after abatement activities in more than 100 facilities, including schools, industrial/commercial buildings, prisons, hospitals, and demolition sites.

Conducted bulk sampling of asbestos-containing building materials in public and private facilities, including schools and industrial/commercial buildings.

Environmental Assessment

Evaluated the potential exposures to chlorinated compounds of residents via vapor intrusion from affected groundwater in an Indiana community.

Evaluated the potential for exposures to dioxin and dioxin-like compounds in a residential area in Texas following a chemical fire at a nearby chemical manufacturing facility.

Evaluated safe distances associated with a planned residential development located near a semi-conductor facility and a wastewater treatment plant.

Developed a process to determine whether a consumer chemical product can be claimed as biodegradable and whether the claim should be qualified or unqualified according to regulations established by the Federal Trade Commission. Additionally, this project involved the assessment of more than 2,000 chemical ingredients using QSAR models, because the substances lacked experimental data for biodegradation.

Managed and directed a state-of-knowledge report on rubber-tree farming to characterize the extent and expansion of rubber-tree cultivation in various growing regions, the potential for environmental and social impacts, and the government programs that incentivized various cultivation methods.

Managed and directed an evaluation of the potential contribution of zinc to watersheds from building materials, consumer products, tires, and other sources. Reviewed published emission inventories and searched for/reviewed published scientific literature on the release of zinc from various sources. A state-of-knowledge report was prepared and shared with various stakeholders concerned with the release of zinc to surface waters.

Managed projects to assess the acute and chronic aquatic toxicity of tire and road-wear particles (TRWP) to freshwater organisms using standard OECD testing procedures and incorporating sediment elutriate and whole-sediment test designs.

Directed the assessment of three rubber chemicals' fate and transport from TRWP to the environment. Performed a mass balance to characterize the presence of the chemicals in the tread rubber matrix and their subsequent transformation and/or release to various environmental compartments.

Managed the development of a chemicals marker to quantify TRWP in environmental matrices. This work expanded earlier research on the use of tread polymer dimers produced during pyrolysis. A formal method, including the novel use of a deuterated internal standard, was published as an ISO Technical Specification.

Directed and managed the design and execution of soil and freshwater sediment sampling programs to quantify TRWP in the environment. These programs were carried out using a watershed approach in three locations: the Seine River watershed in France, the Chesapeake Bay watershed in the United States, and the Yodo River watershed in Japan.

Provided senior technical review of an integrated microplastic (MP) fate-and-transport model for terrestrially released microplastics. The model linked spatially distributed MP releases with terrestrial and freshwater transport processes, to provide a better understanding of the factors affecting MP distribution to the sea. The model was applied to TRWP to understand the overall amount TRWP released on the road, which could be transported to an estuary.

Provided expert opinion on the proper handling and disposal of paint overspray filters in a case involving spontaneous combustion that resulted in a fire at an injection molding facility. Reviewed case materials such as fire department incident reports, deposition testimony, and material safety data sheets, as well as pertinent federal and state regulations regarding flammable substances and hazardous waste.

Provided third-party review to Nevada Department of Environmental Protection (NVDEP) of ambient air monitoring plans prepared in support of remedial actions conducted in the state.

Managed and served as technical lead in the preparation of a SARA 313 delisting petition for chromite ore. This project involved novel chemical experiments to determine the potential for chromic oxide in the ore to oxidize to the hexavalent valence state under various environmental conditions. This information was used to demonstrate the low toxicity of trivalent chromium to humans and its relative immobility in the environment. These factors, coupled with the low potential for ecological health concerns, confirmed that chromite ore did not meet the criteria for listing a chemical on the SARA 313 list of hazardous chemicals.

Conducted a screening level risk assessment of a paper mill in central Pennsylvania as part of a Phase II site investigation associated with a property transfer. Site contaminants included primarily metals (Al, Mn, As, Pb, Se, Ni) and some VOCs.

Managed and directed the preparation of a hazardous waste delisting petition for K006 waste. This project was conducted on behalf of a chromium chemicals manufacturer in an effort to delist a waste stream currently classified as a listed hazardous waste under RCRA. Tasks involved preparation of a waste-stream sampling plan, including a QA/QC plan for collection of representative samples, validation of the analytical laboratory results, preparation of the delisting petition, and attendance at numerous meetings with the EPA regarding delisting criteria.

Performed more than 50 environmental liability assessments of various industrial and commercial properties as part of due diligence efforts. The assessments have focused on the ASTM Standard, which includes a historical review of the property and its uses, and an assessment of current conditions with respect to environmental releases to air, land, surface water, and groundwater. Additionally, issues with respect to water resources and wetland habitats were evaluated.

MANUSCRIPTS

Lipworth L, **Panko JM**, Allen BC, Mumma MT, Jiang X, Vincent MJ, Bare JL, Antonijevic T, Vivanco SN, Marano DE, Suh M, Cohen S, Mittal L, Proctor DM. 2025. Lung cancer mortality among aircraft manufacturing workers with long-term, low-level, hexavalent chromium exposure. J Occup Environ Hyg; doi: 10.1080/15459624.2024.2439817. Online ahead of print 08 Jan 2025.

Kramer A, Vivanco S, Bare J, **Panko J**. 2025. Analysis of EPA air toxics monitoring data and tools for use in general population exposure assessments: Using acrylonitrile as a case study. J Air Waste Manag Assoc; doi: 10.1080/10962247.2024.2438793. Online ahead of print 23 Jan 2025. PMID: 39660961.

Racz L, Gauthier A, Bare J, Heintz M, Feifarek D, Kennedy S, **Panko J**. 2024. Assessment of perfluorocarboxylic acids in fluorinated high-density polyethylene containers and estimation of potential non-cancer risks associated with anticipated use scenarios. Reg Tox Pharm 147:105560.

Panko J, Mittal L, Franke K, Maberti S, Zollers S, Millison K, et al. 2023. Industry-wide review of potential worker exposure to 1,3-butadiene during chemical manufacturing and processing as a reactant. J Occup Environ Hyg; doi: 10.1080/15459624.2023.2264329.

Kreider ML, Unice KM, **Panko JM**. 2020. Human health risk assessment of tire and road wear particles (TRWP) in air. Hum Ecol Risk Assess 26(10):2567-2585; doi: 10.1080/10807039.2019.1674633. Open access.

Benson SM, Maskrey JR, Nembhard MD, Unice KM, Shirley MA, **Panko JM**. 2019. Evaluation of personal exposure to surgical smoke generated from electrocautery instruments: A pilot study. Ann Work Expos Health wxz070; doi; 10.1093/annweh/wxz070. Open access.

Insley AL, Maskrey JR, Hallett LA, Reid RCD, Hynds ES, Winter C, **Panko JM**. 2019. Occupational survey of airborne metal exposures to welders, metalworkers, and bystanders in small fabrication shops. J Occup Environ Hyg 16:6:410–421; doi: 10.1080/15459624.2019.1603389.

Panko JM, Hitchcock KM, Fuller GW, Green D. 2019. Evaluation of tire wear contribution to PM2.5 in urban environments. Atmosphere 10(2):99; doi: 10.3390/atmos10020099.

Unice KM, Weeber MP, Abramson MM, Reid RCD, van Gils JAG, Markus AA, Vethaak AD, **Panko JM**. 2019. Characterizing export of land-based microplastics to the estuary — Part I: Application of integrated geospatial microplastic transport models to assess tire and road wear particles in the Seine watershed. Sci Tot Environ 646:1639–1649.

Unice KM, Weeber MP, Abramson MM, Reid RCD, van Gils JAG, Markus AA, Vethaak AD, **Panko JM**. 2019. Characterizing export of land-based microplastics to the estuary – Part II: Sensitivity analysis of an integrated geospatial microplastic transport modeling assessment of tire and road wear particles. Sci Tot Environ 646:1650–1659.

Burns A, Shin J, Unice KM, Gaffney SH, Kreider ML, Gelatt RN, **Panko JM**. 2017. Combined analysis of job and task benzene air exposures among workers at four US refinery operations. Toxicol Indust Health 33(3):193–210.

Perez AL, Gauthier AM, Ferracini T, Cowan DM, Kingsbury T, **Panko J**. 2017. The challenge of predicting problematic chemicals using a decision analysis tool: Triclosan as a case study. Integr Environ Assess Manag 13(1):198–207.

Panko J, Hitchcock K, Fung M, Spencer PJ, Kingsbury T, Mason AM. 2017. A comparative evaluation of five hazard screening tools. Integr Environ Assess Manag 13(1):139–154; doi: 10.1002/ieam.1757. Open Access.

Panko J, Hitchcock K, Fung M, Spencer PJ, Kingsbury T, Mason AM. 2017. Letter to the Editor: Authors' response to Turner et al. Integr Environ Assess Manag 13(1):15–16.

Maskrey JR, Insley A, Hynds ES, **Panko JM**. 2016. Air monitoring of volatile organic compounds at relevant receptors during hydraulic fracturing operations in Washington County, Pennsylvania. Environ Monit Assess 188(7):1–12, Article 410.

Panko J, Hitchcock K, Fung M, Spencer PJ, Kingsbury T, Mason AM. 2016. A comparative evaluation of five hazard screening tools. Integr Environ Assess Manag 13(1):139–154. doi: 10.1002/ieam.1757.

Kreider ML, Cyrs WD, Tosiano MA, **Panko JM**. 2015. Evaluation of quantitative exposure assessment method for nanomaterials in mixed dust environments: Application in tire manufacturing facilities. Ann Occup Hyg 59(9):1122–1134.

Gauthier AM, Fung M, **Panko J**, Kingsbury T, Perez AL, Hitchcock K, Ferracini T, Sahmel J, Banducci A, Jacobsen M, Abelmann A, Shay E. 2015. Chemical assessment state of the science: Evaluation of 32 decision-support tools used to screen and prioritize chemicals. Integr Environ Assess Manag 11(2):242–255.

Unice KM, Kreider ML, **Panko JM**. 2013. Comparison of tire and road wear particle concentrations in sediment for watersheds in France, Japan, and the United States by quantitative pyrolysis GC/MC analysis. Environ Sci Technol 47(15):8138–8147.

Kreider ML, Burns AM, DeRose GH, **Panko JM**. 2013. Protecting workers from risks associated with nanomaterials: Part I — Exposure assessment. Occup Safety Health 82(7):90–92. Available at: https://ohsonline.com/Articles/2013/07/01/Protecting-Workers-Nanomaterials-Part-I.aspx.

Kreider ML, Burns AM, DeRose GH, **Panko JM**. 2013. Protecting workers from risks associated with nanomaterials: Part II — Best practices in risk management. Occup Safety Health 82(9):20–24. Available at: http://ohsonline.com/articles/2013/09/01/protecting-workers-from-risks-associated-with-nanomaterials.aspx

Gross SA, Avens HJ, Banducci AM, Sahmel J, **Panko JM**, Tvermoes BE. 2013. Analysis of BTEX groundwater concentrations from surface spills associated with hydraulic fracturing operations. J Air Waste Manage Assoc 63(4):424–432.

Panko JM, Chu J, Kreider ML, Unice KM. 2013. Measurement of airborne concentrations of tire and road wear particles in urban and rural areas of France, Japan, and the United States. Atmos Environ72:192–199.

Unice KM, Kreider ML, **Panko JM**. 2012. Use of a deuterated internal standard with pyrolysis-GC/MS dimeric marker analysis to quantify tire tread particles in the environment. Int J Environ Res Pub Health 9:4033–4055.

Kreider ML, Doyle-Eisele M, Russell RG, McDonald JD, **Panko JM**. 2012. Evaluation of potential for toxicity from subacute inhalation of tire and road wear particles in rats. Inhal Toxicol 24(12):907–917.

Panko JM, Kreider ML, McAtee BL, Marwood C. 2012. Chronic toxicity of tire and road wear particles to water- and sediment-dwelling organisms. Ecotoxicology 22(1):13–21, doi: 10.1007/s10646-012-0998-9.

Hitchcock KM, **Panko JM**, Scott PK. 2012. Incorporating chemical footprint reporting into social responsibility reporting. Integr Environ Assess Manag 8(3):386–388.

Kreider ML, **Panko JM**. 2012. Letter to editor re: Ling et al. 2011 (Environ Sci Pollut Res Int 18(6):877-889). Environ Sci Pollut Res Int 19(5):1864–1866, doi: 10.1007/s11356-011-0708-9.

Panko JM, Hitchcock KM. 2011. Chemical footprint: Enduring product sustainability. EM: AWMA Magazine for Environ Managers, December:12–15.

Marwood C, McAtee BL, Kreider ML, Ogle RS, Finley BL, Sweet LI, **Panko JM**. 2011. Acute aquatic toxicity of tire and road wear particles to alga, daphnid and fish. Ecotoxicology 20:2079, doi: 10.1007/s10646-011-0750-x.

Paustenbach DJ, **Panko JM**. 2011. Comment on "Risk versus Hazard – How to Regulate in the 21st Century." Europ J Risk Regul February:193–195.

Gaffney SH, **Panko JM**, Unice KM, Burns AM, Kreider ML, Gelatt RH, Booher LE, Paustenbach DJ. 2011. Occupational exposure to benzene at the ExxonMobil refinery in Baytown, TX (1978-2006). J Exp Sci Environ Epidemiol 21:169–185.

Gaffney SH, Burns AM, Kreider ML, Unice KM, Widner TE, Paustenbach DJ, Booher LE, Gelatt RN, **Panko JM**. 2010. Occupational exposure at the ExxonMobil refinery in Beaumont, TX (1976-2007). Int J Hyg Environ Health 213(4):285–301.

Kreider ML, **Panko JM**, McAtee BL, Sweet LI, Finley BL. 2010. Physical and chemical characterization of tire-related particles: Comparison of particles generated using different methodologies. Sci Total Environ 408(3):652–659.

Gaffney SH, **Panko JM**, Unice KM, Burns AM, Kreider ML, Gelatt RH, Booher LE, Paustenbach DJ. 2009. Occupational exposure to benzene at the ExxonMobil Refinery in Baytown, TX (1978-2006). J Expos Sci Environ Epidemiol 21:169185.

Panko JM, Gaffney SH, Burns AM, Unice KM, Kreider ML, Booher LE, Gelatt RH, Marshall JR, Paustenbach DJ. 2009. Occupational exposure to benzene at the ExxonMobil Refinery at Baton Rouge, Louisiana (1977–2005). J Occup Environ Hyg 6:517–529.

Williams ES, **Panko JM**, Paustenbach DJ. 2009. The European Union's REACH Regulation: A review of its history and requirements. Crit Rev Toxicol 39(7):553–575.

Williams PRD, **Panko JM**, Unice KM, Brown JL, Paustenbach DJ. 2008. Occupational exposures associated with petroleum-derived products containing trace levels of benzene. J Occup Environ Hyg 5:9:565–574.

Paustenbach DJ, Gaffney SH, Scott PK, Brown JL, **Panko JM**. 2007. Commentary: High background levels of urinary benzene metabolites found in a volunteer study. J Occup Environ Hyg 4:D71–D77.

Scott PK, Unice KM, Williams S, **Panko JM**. 2007. Statistical evaluation of metal concentrations as a method for identifying World Trade Center dust in buildings. Environ Forensics 8(4).

Paustenbach DJ, **Panko JM**, Scott PK, Unice KM. 2007. A methodology for estimating human exposure to perfluorooctanoic acid (PFOA): A retrospective exposure assessment of a community (1951-2003). J Toxicol Environ Health A 70(1):28–57.

Proctor DM, **Panko JM**, Liebig EW, Paustenbach DJ. 2004. Estimating historical occupational exposure to airborne hexavalent chromium in a chromate production plant: 1940–1972. J Occup Environ Hyg 1(11):752–767.

Crump C, Crump K, Hack E, Luippold R, Mundt K, Liebig EW, **Panko JM**, Paustenbach DJ, Proctor DM. 2003. Dose-response and risk assessment of airborne hexavalent chromium and lung cancer mortality. Risk Anal 23(6):1147–1163.

Luippold RS, Mundt KA, Austin RP, Liebig EW, **Panko JM**, Crump C, Crump K, Proctor DM. 2003. Lung cancer mortality among chromate production workers. J Occup Environ Med 60:451–457.

Proctor DM, **Panko JM**, Liebig EW, Mundt KA, Buczynski MA, Barnhart RJ, Harris MA, Morgan RJ, Finley BL, Paustenbach DJ. 2003. Workplace airborne hexavalent chromium concentrations for the Painesville, Ohio chromate production plant (1943–1971). Appl Occup Environ Hyg 18(6):430–449.

Proctor DM **Panko JM**, Finley BL, Butler WJ, Barnhart RJ. 1999. Commentary: Need for improved science in standard setting for hexavalent chromium. Regul Toxicol Pharmacol 29:99–101.

Finley BL, Burton S, **Panko JM**, Proctor DM. 1997. A preliminary assessment of PCB risks to human and ecological health in the lower Passaic River. J Soc Environ Tox Chem 52(2):95–118.

Paustenbach DJ, **Panko JM**, Fredrick MM, Finley BL, Proctor DM. 1997. Urinary chromium as a biological marker of environmental exposure: What are the limitations? Regul Toxicol Pharmacol 26(1 Pt 2):S23–S34.

BOOK CHAPTERS

Panko J, Kreider M, Unice K. 2018. Review of tire wear emissions. Chapter 7 in: Amato (ed)., Non-Exhaust Emissions — An Urban Air Quality Problem for Public Health; Impact and Mitigation Measures. Elsevier, Amsterdam, Netherlands, pp.147–160.

Sahmel J, Cowan DM, **Panko JM**, Paustenbach DJ. 2012. Future trends in risk management: Control banding and REACH. Chapter 19 in: Perkins J, Gray C. (eds). Modern Industrial Hygiene, Volume III: Control of Chemical Agents, Part IV: Risk Management. ACGIH, Cincinnati, OH, pp. 727–764.

INDUSTRY TRADE PUBLICATIONS

Kreider ML, Burns AM, DeRose GH, **Panko JM**. 2013. Protecting workers from risks associated with nanomaterials: Part I – Exposure assessment. Occup Health Safety 82(7):90–94.

Kreider ML, Burns AM, DeRose GH, **Panko JM**. 2013. Protecting workers from risks associated with nanomaterials: Part II – Best management practices. Occup Health Safety 82(7):90-94, https://ohsonline.com/Articles/2013/09/01/Protecting-Workers-from-Risks-Associated-with-Nanomaterials.aspx

Panko JM, Kreider ML, Unice KM. 2013. Industry analyzes global impact of tires. Rubber Plast News, June 3:15–18.

ABSTRACTS AND PRESENTATIONS

Bare J, Kennedy SB, Feifarek D, **Panko J**. Quality and reliability evaluation of 6PPD-quinone surface water occurrence data and considerations for use in risk assessment. Abstract 4.22.P-Mo-119, Society of Environmental Toxicology and Chemistry, 45th Annual Meeting, Fort Worth, TX, October 2024.

Feifarek D, Kennedy S, **Panko J**. Mechanistic evaluation of 6PPD-quinone toxicity in fish. Abstract 4.22.B.T-03, Society of Environmental Toxicology and Chemistry, 45th Annual Meeting, Fort Worth, TX, October 2024.

Allen B, Vincent M, Lipword L, **Panko J**, Suh M, Jiang X, Mumma, Proctor D. Lung cancer risk and exposure to hexavalent chromium: Results of extended mortality study of workers with low level exposures and quantitative risk assessment using pooled analysis of three cohorts. Society of Toxicology Annual Meeting, Salt Lake City, UT, March 2024.

LaPlaca SB, Feifarek D, **Panko JM**. Differential acute sensitivity to 6PPD-quinone among aquatic species and regional applicability. Poster at Society of Environmental Toxicology and Chemistry (SETAC), Louisville, KY, November 2023.

Costello B, Gauthier A, Harper P, **Panko J**. The convergence of ESG and Total Worker Health. Platform session at AIHce Exp 2023, Phoenix, AZ, May 2023.

Bare J, Vivanco, S, **Panko J**. Example framework for chemical additive replacement prioritization in a circular economy for plastics: Human health perspective. Poster at Society of Environmental Toxicology and Chemistry (SETAC), Philadelphia, PA, November 2022.

Panko, J. Challenges in characterizing environmental health risk of microplastics: Experiences from the tire industry project related to tire and road wear particles. Presentation at workshop: Tackling the Potential Human Health Impacts of Microplastics and Nanoplastics: Challenges for Toxicologists in the Assessment of Real-World Complex Mixtures. Society of Toxicology Annual Meeting, Virtual Meeting, March 2021.

Insley AL,.Maskrey JR, Hallett LA, Reid RCD, Hynds ES, Winter C, **Panko JM**. Occupational survey of airborne metal exposures to welders, metalworkers, and bystanders in small fabrication shops. Poster at American Industrial Hygiene Conference and Exhibition, Minneapolis, MN, May 2019.

Kreider ML, Hynds ES, **Panko JM**. Evaluation of tire and road wear particles (TRWP) in air in Delhi, India. Poster at Society of Toxicology Annual Meeting, Baltimore, MD, March 2019.

Benson SM, Maskrey JR, Nembhard M, **Panko JM**. Characterization of surgical smoke generated from electrocautery instruments: A pilot study. Poster at the 2018 American Occupational Health Conference (AOHC) 103rd Annual Meeting, New Orleans, LA, April 29 – May 2018.

Gloekler L, Shay EC, Schmidt N, Haghighat B, **Panko JM**, Cowan DM, Paustenbach DJ. Flame-retardants in upholstered furnishings: An assessment of health risk and fire-related deaths in the era of California Technical Bulletin (TB-117). Abstract #2669. Poster at Society of Toxicology Annual Meeting, New Orleans, LA, March 2016.

Kreider ML, **Panko JM**. Weight of evidence evaluation of potential endocrine disruption by 1,3-diphenylguanidine based on results of tier 1 endocrine disruption screening program assays. Abstract #1864. Poster at Society of Toxicology Annual Meeting, New Orleans, LA, March 2016.

Panko JM, Benson SM, Kreider ML. Meta-analysis of lung cancer risk related to diesel exposure by occupation and evaluation of exposure response. Abstract #2976. Poster at Society of Toxicology Annual Meeting, New Orleans,LA, March 2016.

Unice KM, Bare JL, Kreider ML, **Panko JM**. Evaluation of leachate from tire and road wear particles (TRWP) upflow percolation column tests. Poster at Society of Environmental Toxicology and Chemistry, 36th Annual Meeting, Salt Lake City, UT, November 2015.

Panko JM, Hitchcock KM. From critical reviews of hazard assessment tools to building a product evaluation framework: Can we bridge the gaps with a super tool? Presentation at the American Industrial Hygiene Conference & Expo (AIHce), Salt Lake City, UT, May–June 2015.

Panko JM, Hitchcock KM, Fung M, Spencer PJ, Kingsbury T, Mason AM. A comparative evaluation of seven hazard screening tools. Poster at 25th Annual Meeting of NorCal SETAC, Sacramento, CA, April 2015.

Mason AM, Spencer PJ, **Panko JM**. A pilot project reveals prominent hazard screening tools fall short on performance expectations. Poster at the 54th Annual Meeting and Society of Toxicology (SOT) Meeting, San Diego, CA, March 2015.

Panko JM. Chemical selection tools analysis project & results. Presented at GlobalChem. Global Chemical Regulations Conference, Baltimore, MD, March 2014.

Cyrs WD, Tosiano MA, **Panko JM**, Kreider ML. Use of a novel method to assess exposure to nanoscale carbon black and amorphous silica at two tire manufacturing facilities. Presentation at The American Industrial Hygiene Conference & Exposition (AIHce), San Antonio, TX, May–June 2014.

Kreider ML, Cyrs WD, Tosiano MA, **Panko JM**. Method development for nanomaterials exposure assessment in mixed dust environments. Presentation at The American Industrial Hygiene Conference & Exposition (AIHce), San Antonio, TX, May–June 2014.

Panko JM. Green chemistry: A critical element of sustainable development and product stewardship. Presentation at The American Industrial Hygiene Conference & Exposition (AIHce), San Antonio, TX, May–June 2014.

Shay EC, **Panko JM**. Community-focused remediation and risk assessment at a former manufactured gas plant site. Poster at Society of Environmental Toxicology and Chemistry, 34th Annual Meeting, Nashville, TN, November 2013.

Hitchcock KM, Shay ED, **Panko JM**. Making product and chemical safety decisions from varying stakeholder viewpoints. Poster platform presentation at Society of Environmental Toxicology and Chemistry, 34th Annual Meeting, Nashville, TN, November 2013.

Tosiano MA, **Panko JM**, Scott PK. Risk based evaluation of the chemical constituents in hydraulic fracturing fluid using the chemical disclosure registry FracFocus. Poster at Society of Environmental Toxicology and Chemistry, 34th Annual Meeting, Nashville, TN, November 2013.

Gauthier AM, Kingsbury T, Ferracini TV, **Panko JM**. Beyond the standards: Comparing sustainability reports of consumer products companies. Session: Stewardship & Sustainability. Poster at The American Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, May 2013.

Kingsbury T, Gauthier AM, Ferracini TV, **Panko JM**, Perez AL. Predicting chemistries targeted for deselection: A case study with triclosan. Session: Stewardship & Sustainability. Poster at The American Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, May 2013.

Avens HJ, Gross S, Banducci AM, Sahmel J, Tvermoes BE, **Panko JM**. Characterization of surface spills associated with hydraulic fracturing operations. Session: Oil and Gas, Presentation at The American Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, May 2013.

Panko JM, Kreider NK, Unice KM. Tire industry project — An industry-wide product sustainability initiative. Session: Stewardship & Sustainability, Presentation at The American Industrial Hygiene Conference & Exposition (AIHce) in Montreal, Quebec, May 2013.

Kreider ML, Unice KM, **Panko JM**. Framework for quantitative exposure assessment of nanostructured materials in occupational settings. Presented at the TechConnect World 2013 — Nanotech, Microtech, Biotech, Cleantech Joint 2013 Conferences, Washington, DC, May 2013.

Hitchcock KM, **Panko JM**, Scott PK, Unice KM, Shay EC. Responding to community concerns surrounding hydraulic fracturing activities near a school. SETAC North America 33rd Annual Meeting, Long Beach, CA, November 2012.

Kreider ML, Unice KM, **Panko JM**. A case study in understanding exposure associated with nanostructured materials: Carbon black and amorphous silica. Presented at SETAC Asia/Pacific 2012 Meeting, Kumamoto, Japan, September 2012.

Unice KM, **Panko JM**. Analytical method development and validation of a pyrolysis-GC/MS method to quantify tire and road wear particles in environmental samples. Presented at SETAC Asia/Pacific 2012 Meeting, Kumamoto, Japan, September 2012.

Unice KM, Chu J, **Panko JM**. Evaluation of tire and road wear particles in the Yodo River watershed: A global tire industry sustainability initiative. Presented at SETAC Asia/Pacific 2012 Meeting, Kumamoto, Japan, September 2012.

Kreider ML, **Panko JM**. Effects of subacute inhalation exposure to tire and road wear particles in rats. Presented at Eurotox 2012, Stockholm, Sweden, June 2012.

Unice KM, Chu J, McAtee BL, **Panko JM**. Evaluation of tire and road wear particles in the Seine River watershed: A sustainability initiative of the global tire industry. Presented at the 6th SETAC World Congress and 22nd Annual SETAC Europe Meeting, Berlin, Germany, May 2012.

Hitchcock K, Scott PK, Unice KM, **Panko JM**. Comparing the chemical footprint of hydraulic fracturing fluids used in natural gas extraction. Presented at the 6th SETAC World Congress and 22nd Annual SETAC Europe Meeting, Berlin, Germany, May 2012.

Kreider ML, **Panko JM**, Finley BL. 2012. Effects of subacute inhalation exposure to tire and road wear particles in rats. Presented at the 2012 Health Effects Institute (HEI) Annual Conference, Chicago, IL, April 2012.

Panko JM. Ambient air quality associated with hydraulic fracturing operations. Presented at the 21st Annual Business and Industry's Sustainability and Environmental Health & Safety Symposium, Cincinnati, OH, March 2012.

Panko JM, Zöller M, Tartaglino U, Peters F, Unice KM, Kreider ML, Crawford M. Tire and road wear particles: A comprehensive evaluation of environmental health issue. Tire Technology Expo, Cologne, Germany. February 2012.

Panko JM. Evaluation of the potential aquatic toxicity of TRWP to algae, daphnids and fish. Tire Technology Expo, Cologne, Germany, February 2012.

Hitchcock KM, **Panko JM**, Scott PK. The chemical footprint: An emerging indicator of environmental performance. Society for Environmental Toxicology and Chemistry, Boston, MA, November 2011.

Grespin ME, Le MH, **Panko JM**. Safety data sheet alteration during alignment with the Globally Harmonized System of Classification (GHS) and implications for chemical manufacturers, suppliers and distributors. Society for Risk Analysis Annual Meeting, Charleston, SC, December 2011.

Kreider ML, **Panko JM**, McDonald JD, McAtee BL, Finley BL, Seagrave J. Effects of intratracheal instillation of tire and road wear particles (TRWP) and tread particles (TP) on inflammation and cytotoxicity in rat lung: A comparative toxicity study. Society of Toxicology Annual Meeting, Baltimore, MD, March 2011.

Panko JM, Kreider ML, Ferrara J. REACH – A review of the regulation and technical components of registration. AIHA Pittsburgh Section, Pittsburgh, PA, February 2010.

Harada M, Shibata T, **Panko JM**, Unice KM. Analysis methodology of rubber fraction in fine particles. ACS Rubber Division 176th Technical Meeting, Pittsburgh, PA, October 2009.

Unice KM, Kreider ML, McAtee BL, **Panko JM**. Evaluation of extractable organic zinc as a quantitative marker for tire tread particles in environmental matrices. ACS Rubber Division 176th Technical Meeting, Pittsburgh, PA, October 2009.

Panko JM, Gaffney SH, Kreider ML, Unice KM, Burns AM, Paustenbach DJ, Booher LE, Gelatt RH. Job and task based analysis of benzene air concentrations associated with refinery operations. Benzene 2009: Health Effects and Mechanisms of Bone Marrow Toxicity; Implications for t-AML and the Mode of Action Framework, Munich, Germany, September 2009.

McAtee BL, Kreider ML, **Panko JM**, Sweet LI, Finley BL. Biological leaching of metals from respirable tire wear particles. Eurotox 2009, Dresden, Germany, September 2009.

Panko JM, McAtee BL, Kreider ML, Gustafsson M, Blomqvist G, Gudmundsson A, Sweet LI, Finley BL. Physio-chemical analysis of airborne tire wear particles. Eurotox 2009, Dresden, Germany, September 2009.

Widner TE, Paustenbach DJ, Gaffney SH, **Panko JM**, Unice KM, Burns AM, Kreider ML, Gelatt R, Booher L. Airborne benzene concentrations associated with dock operations at the ExxonMobil Refinery, Baytown, Texas (1978–2007). Presentation #243, American Industrial Hygiene Conference and Exhibition, Toronto, ON, June 2009.

Panko JM. Progress on a BEEL Guide for d-limonene. Roundtable #224, American Industrial Hygiene Conference and Exhibition, Toronto, ON, June 2009.

Panko JM. Case studies in sustainable packaging. Session: What's in Your Package? Sustainable Packaging Coalition Conference, Chicago, IL, March 2009.

Gaffney SH, Kreider ML, Unice KM, Burns AM, Paustenbach DJ, Booher LE, Gelatt RH, **Panko JM**. Benzene exposure in refinery workers (1976-2006). Abstract #864, International Society for Environmental Epidemiology & International Society of Exposure Analysis 2008 Joint Annual Conference, Pasadena, CA, October 2008.

Panko JM, Kreider ML, Sweet LI, McAtee BL, Finley BL. Methods for collecting tire wear particles. Paper #40, Fall 174th Technical Meeting of the Rubber Division of the American Chemical Society, Louisville, KY, October 2008.

Kreider ML, McAtee BL, Sweet LI, **Panko JM**, Finley BL. Physical and chemical characterization of tire-related particles: Comparison of particles generated using different methodologies. Paper #41, Fall 174th Technical Meeting of the Rubber Division of the American Chemical Society, Louisville, KY, October 2008.

Panko JM, Gaffney SH, Unice KM, Kreider ML, Burns AM, Widner TE, Booher LE, Gelatt GL, Paustenbach DJ. Benzene exposures of refinery workers: Baytown, TX (1978-2006). American Industrial Hygiene Conference and Exhibition, June 2008.

Panko JM, Unice KM, Shay EC. 2007. Recommendations for developing child-focused exposure assessments based on VCCEP experiences. Society for Risk Analysis, December 2007.

Williams PRD, **Panko JM**, Unice KM, Brown JL, Paustenbach DJ. 2007. Benzene exposures from petroleum-derived solvents containing trace levels of benzene in occupational settings. American Industrial Hygiene Conference and Exhibition, June 2007.

Gaffney SH, Widner TE, Paustenbach DJ, **Panko JM**, Brown JL, Unice KM. Historical benzene exposure reconstruction: Refinery workers at ExxonMobil Refinery, Baton Rouge, Louisiana (1978-2005). American Industrial Hygiene Conference and Exhibition, June 2007.

Panko JM, Unice KM, Shay EC. Javier AF. Assessment of children's exposures to toluene. Society of Toxicology Conference, March 2007.

Panko JM, Unice KM, Shay EC, Javier AF. 2006. Assessment of children's exposures to benzene. Society for Risk Analysis, December 2006.

Panko JM, Unice KM, Shay EC, Price P. Assessment of children's exposures to xylenes. International Society for Exposure Assessment Conference 2006.

Panko JM, Shay EC. Potential for airborne dispersion of bromadiolone and exposure in an office setting. International Society for Exposure Assessment Conference 2006.

Paustenbach DJ, **Panko JM**, Scott PK, Unice KM. Retrospective modeling of potential residential exposure to perfluorooctanoic acid (PFOA) releases from a manufacturing facility. Society of Toxicology Conference 2006.

Paustenbach DJ, Gaffney SA, Scott PK, Brown JL, **Panko JM**. High background levels of urinary benzene metabolites found in volunteer study. Society of Toxicology Conference 2006.

Panko JM, Unice KM, Brown JL. Comparison of toluene exposures during spray painting using various consumer product exposure models. International Society for Exposure Assessment Conference 2005.

Unice KM, **Panko JM**, Scott PK. Development of exposure assessment models for indoor air exposure to elemental mercury. International Society for Exposure Assessment Conference 2005.

Unice KM, **Panko JM**, Scott PK. Considerations for reconstruction of TCE exposure from groundwater vapor intrusion. International Society for Exposure Assessment Conference 2005.

Scott PK, Unice KM, **Panko JM**. Statistical evaluation of metals concentrations as a method for identifying World Trade Center dust. International Society for Exposure Assessment 2005.

Panko JM, Unice KM, Shay EC, Price P. 2004. Childhood exposure assessment of acetone. International Society for Exposure Assessment 2004.

Panko JM, Shay EC, Unice KM. Risk perception: The reoccupancy of Lower Manhattan office space following the national tragedies of September 11, 2001. Poster at the Society for Risk Analysis Annual Conference, December 2003.

Panko JM. AWMA/Healthy Indoor Partnerships. International Conference on Indoor Air Quality/Health Indoor Environment, Mold Contamination Case Studies, 2003.

Panko JM. Mold problems in buildings. Solving water intrusion and mold problems in Pennsylvania. Lorman Education Services, Altoona, PA, November 2003.

PEER-REVIEWED REPORTS

ACC (American Chemistry Council). 2006. Toluene VCCEP submission. Prepared by the American Chemistry Council, Benzene, Toluene, Xylenes VCCEP Consortium, September. Available at http://www.tera.org/Peer/VCCEP/Toluene/TolueneWelcome.html

ACC (American Chemistry Council). 2006. Benzene VCCEP submission. Prepared by the American Chemistry Council Benzene, Toluene, Xylenes VCCEP Consortium, March. Available at http://www.tera.org/Peer/VCCEP/Benzene/BenzeneWelcome.html

ACC (American Chemistry Council). 2005. Xylenes Category VCCEP Submission. Prepared by the American Chemistry Council Benzene, Toluene, Xylenes VCCEP Consortium, October. Available at http://www.tera.org/Peer/VCCEP/xylenes/xylenesWelcome.html

ACC (American Chemistry Council) 2003. Acetone VCCEP submission. Prepared by the American Chemistry Council Acetone Panel, September 10. Available at http://www.tera.org/Peer/VCCEP/Acetone/AcetoneWelcome.html