



PROFESSIONAL PROFILE



Tami McMullin, PhD

Principal Scientist | Toxicologist | Risk Assessor

EXPERIENCE SUMMARY

Dr. Tami McMullin is a toxicologist and risk assessor with over twenty years of multidisciplinary experience applying risk-based frameworks to support regulatory and legislative policies involving chemical risk management, product stewardship, and public health protection. Her career spans state government, the chemical industry, academia, and consulting, providing her with a unique breadth of expertise to deliver technical guidance on public health issues. She formerly served as the State Toxicologist for Colorado, where she led teams to evaluate health risks related to chemical exposures for a variety of issues, including Superfund waste sites, brownfields, and oil and gas exploration and development. Dr. McMullin has first-hand experience designing and overseeing environmental and air toxics field studies, and interpreting resulting data for regulatory, public health, and litigation purposes. She has served as a testifying and consulting expert in regulatory hearings and toxic tort proceedings involving air toxics and other environmental exposures. Her work focuses on exposure and risk evaluation, general causation analysis, and risk communication to non-scientific decision makers. Her work history includes the following roles:

- Principal Toxicologist and Risk Assessor, Roux, 2026–Present
- Principal Toxicologist, CTEH, 2018–2025
- Adjunct Assistant Professor, 2024–Present
- University Of Arkansas for Medical Sciences, School of Public Health State Toxicologist, 2015–2018
- Colorado Department of Public Health and Environment
- Adjunct Instructor, Colorado School of Mines, 2012–2014
- Product Toxicologist, Dow Corning Corporation, 2007–2015
- Toxicology Specialist, Dow Chemical Company, 2005–2007

TECHNICAL SPECIALTIES

- Regulatory Science
- Exposure Science (Designing, Generating, and Interpreting Exposure Data)
- Human Health Risk Assessment
- Risk Communication
- Applied Public Health
- Regulatory Toxicology and Product Safety
- Air Toxics
- Pharmacokinetics and Dosimetry
- Energy Sector
- Environmental Justice
- Cumulative Impacts

REPRESENTATIVE PROJECTS

Public Health Regulatory and Policy Consulting

- Member of the CDPHE Scientific Community Technical Group to provide technical expertise on toxicity values, risk-based decision making, and standard setting per mandate in Colorado HB22-1244, the Public Protections for Toxic Air Contaminants.
- Developed and led a state funded program (Oil and Gas Health Information and Response Program) to evaluate the scientific literature regarding public health risks associated with oil and gas development and production in Colorado. In this capacity, I developed a state of the science report that guided policymakers, the state oil and gas commission, and the state health department in regulatory decision making related to setback distances from oil and gas.
- Provided strategic consulting to regulated stakeholders regarding implementation of Colorado SB1189 to require fenceline air toxics air monitoring. Developed air monitoring plans and health-based exposure thresholds to adhere to new regulations.

CONTACT INFORMATION

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EDUCATION

PhD, Toxicology, Department of Environmental and Radiological Health Sciences, Colorado State University, Fort Collins, CO, 2005
BS, Biology, University of California, San Diego, CA, La Jolla, CA, 1998

PROFESSIONAL TRAININGS

OSHA 29 CFR 1910.120 40-Hour Safety Training
OSHA 29 CFR 1910.120 8-Hour Refresher Training
TWIC Clearance
Crisis Risk Communication Training, Center for Risk Communication
Health Impact Assessment Training

- Consulted on multiple public health issues of high concern in disproportionately impacted communities.
- Developed permissible levels of pesticides and solvents in various marijuana products, which were used to develop state regulations.
- Provided technical public health expertise on drafting legislation, rulemaking, and permitting.

Oil and Gas Rulemakings

- Testimony before the Colorado Energy and Carbon Management Commission of the State of Colorado (ECMC) for Colorado Senate Bill 19-181 mission change rulemaking to promulgate public health protection rules, including setbacks for oil and gas (Docket No. 200300071).
- Testimony before the ECMC at the SB 19-181 Cumulative Impacts Rulemaking Hearing (Docket No. 240600145).
- Testimony before the Arapahoe County Board of Commissioners regarding a temporary moratorium on use by special review applications for oil and gas facilities (File 23-245) and setback rulemaking related to protection of public health (Resolution 23-273).
- Testimony before the Colorado Department of Public Health and Environment (CDPHE) Air Quality Control Commission (AQCC); Regulation 7 hearings.

Permit Hearings

- Testimony before the ECMC on a contested hearing on the Crestone Peak Resources Cosslett East Oil and Gas Development Plan (OGDP). Docket No. 210700115.
- Testimony before the ECMC Crestone Peak Resources Box Elder Comprehensive Area Plan (CAP) Application. Docket No. 210700116.
- Testimony before the ECMC Crestone Peak Resources Lowry Ranch Comprehensive Area Plan (Lowry Ranch CAP). Docket No. 221000282.

Environmental Justice and Air Quality Rulemakings

- Testimony before the Albuquerque-Bernalillo County Air Quality Board regarding petition seeking a new rule to address cumulative impacts, particularly for communities disproportionately affected by air pollution.
- Testimony before the CDPHE AQCC; Colorado House Bill 21-1266 "Environmental Justice Act" rulemaking.
- Testimony before the CDPHE AQCC for House Bill 22-1244 "The Public Protections from Toxic Air Contaminants Act" rulemaking Regulation Number 30 to address a regulatory framework for the State's new toxic air contaminant program rules and regulations.

Exposure Characterization, Human Health Risk Assessment, and Risk Communication

- Provided exposure and risk assessment expertise for multiple residential, recreational, and worker exposure environmental and public health risk assessments, some of which include:
 - Ethylene oxide emissions from facilities.
 - Heavy metals, including lead and arsenic, at various superfund mining sites in Colorado.
 - Soil, indoor dust from residual lead and arsenic from Colorado Smelter Superfund Site.
 - Contaminated steel slag for driveway material
 - Hydrogen cyanide emissions from oil refinery.
 - Hydrogen sulfide emissions.
 - Carbon dioxide emissions from a well.
 - Volatile Organic Compound emissions from upstream oil and gas drilling and production; produced water facilities.
 - Respirable silica emissions from cement plant.
 - Uranium contamination in drinking water.
 - Chemical weapons storage facilities.
 - Perfluorinated substances (PFAS) released into soil and drinking water from Peterson Air Force Base in Colorado Springs, CO. As part of this response, derived health advisory levels for PFAS in drinking water and uptake into vegetables.
 - Formaldehyde off gassing from building materials.
 - Siloxane materials in consumer and industrial products.
 - Agrochemicals, including glyphosate and triazine herbicides.
- Part of a team of toxicologists on a multi-year project providing toxicological and risk communication support to address chemical vapor exposures to workers at the U.S. Department of Energy Hanford nuclear site.
- Designed air monitoring and sampling studies and generated health risk assessments for multiple oil and gas clients to characterize the potential community exposures and health risks to oil and gas related VOCs during all phases of extraction. The data from these studies have been used to support science-based regulatory decision making, permitting, and community risk communication.

Regulatory Toxicology and Product Safety Assessment

- Directed GLP guideline toxicity studies required for chemical registration in U.S. and global markets, including Toxic Substances Control Act (TSCA) and European Chemicals Agency

(ECHA), including general (acute-chronic), developmental and reproductive, endocrine disruption and pharmacokinetic studies.

- Oversaw all aspects of toxicity testing for multiple industrial, consumer products and agricultural chemicals, including directing duties of study personnel, developing study designs and protocols, writing reports, analyzing data, and communicating technical issues to internal business customers.
- Provided consultation on the safety of new products through the product lifecycle, including personal care, industrial, agricultural, and healthcare product lines for pesticides and herbicides such as atrazine, sulfuryl fluoride, organochlorine pesticides, cyclic and linear volatile methyl siloxanes, biocides and preservatives, and multiple other carbon-based intermediates.

Pharmacokinetics/Dose Reconstruction

- Developed methods to incorporate knowledge of a chemical's pharmacokinetic profile into dose selection and interpretation of health effects for developmental and reproductive toxicology studies using perinatal physiologically based pharmacokinetic (PBPK) modeling.
- Designed kinetic testing strategies for agrichemicals using pharmacokinetic modeling to improve the understanding of the biological and biochemical processes regulating chemical toxicity differences among species and life stages.
- Served on US EPA advisory board to assess the sufficiency of PBPK models for atrazine to inform regulatory decisions.
- Developed and applied PBPK models to interpret biomonitoring data collected in the general and worker populations for atrazine, sulfuryl fluoride, chlorpyrifos, cyclic and linear siloxanes and benzene.

EXPERT TESTIMONY

In the Superior Court, County of Kern, State of California Aera Energy, LLC and Chevron U.S.A. Inc. v. Gavin Newsom et al. Case Nos. BCV-22-100748 and BCV-22-100636 Trial Testimony January 29, 2026.

In the Superior Court, County of Kern, State of California Aera Energy, LLC and Chevron U.S.A. Inc. v. Gavin Newsom et al. Case Nos. BCV-22-100748 and BCV-22-100636 Deposition Testimony January 13, 2026.

In the District Court, County of Jefferson, State of Colorado Jordan, et al. v Terumo BCT Sterilization Services, Inc. Case No. 2020CV031457 Deposition Testimony November 5, 2025.

In the District Court, County of Jefferson, State of Colorado Eve Isaacks, Victoria Anderson, et al. v Terumo BCT Sterilization

Services, Inc. Case No. 2022CV031124 Trial Testimony March 6-7, 2025.

In the District Court, County of Jefferson, State of Colorado Eve Isaacks, Victoria Anderson, et al. v Terumo BCT Sterilization Services, Inc. Case No. 2022CV031124 Deposition Testimony November 19, 2024.

In the District Court, County of Jefferson, State of Colorado Ann Jordan, Bruce Howard Brown, David Gutierrez, et al. v Terumo BCT Sterilization Services, Inc. Case No. 2020cv31457 Deposition Testimony March 20, 2023.

PROFESSIONAL AFFILIATIONS

United States Environmental Protection Agency (EPA) Science Advisory Board (SAB) and SAB Chemical Assessment Advisory Committee, 2026–Present

Society of Toxicology, 1998–Present

Council Member, International Society of Regulatory Toxicology and Pharmacology (IS RTP), 2024–Present

Risk 21 Committee, ILSI-Health and Environmental Science Institute, 2013–2015

Scientific Community Technical Working Group, Colorado Air Toxics Bill (HB-22-1244), 2024–2025

PUBLICATIONS

Bamber, A., Hasanali S.H., Nair, A.S., Watkins, S.M., Vigil, D.I., Van Dyke, M., McMullin, T.S., Richardson, K. (2019). A systematic review of the epidemiologic literature assessing health outcomes in populations living near oil and natural gas operations: study quality and future recommendations. *Int J Environ Res Public Health*. 2019 Jun 15;16(12). pii: E2123.

McMullin, T.S., Bamber, A., Vigil, D., Bon, D., and Vandyke, M. (2018). Exposures and health risks from volatile organic compounds in communities located near oil and gas exploration and production activities in Colorado. *International Journal of Environmental Science and Public Health*, Jul 16, 15(7).

McMullin, T.S., Yang, Y., Campbell, J., Clewell, H.J., Plotzke, K.P., and Andersen, M.E. (2016). Development of an integrated multi-species and multi-dose route PBPK model for volatile methyl siloxanes - D4 and D5. *Regulatory Toxicology and Pharmacology*, 74 Suppl: S1- S13.

Wolf, D.C., Bachman, A., Barrett, G., Bellin, C., Goodman, J., Jensen, E., McMullin, T.S., Pastoor, T.P., Schoeny, R., Slezak, B., Wend, K., and Embry, M.R. (2016). Illustrative case using the RISK21 roadmap and matrix: prioritization for evaluation of chemicals found in drinking water. *Critical Reviews in Toxicology*, 46(1), 43-53.

Simon, T.W., Simons, S.S. Jr, Preston, R.J., Boobis, A.R., Cohen, S.M., Doerrer, N.G., Fenner- Crisp, P.A., McMullin, T.S., McQueen, C.A., and Rowlands, J.C. (2014). The use of mode of action information in risk assessment: quantitative key events/ dose-

response framework for modeling the dose-response for key events. *Critical Reviews in Toxicology*, 44 Suppl 3, 17-43.

Meyers, V.E., García, H.D., McMullin, T.S., Tobin, J.M., and James, J.T. (2013). Safe human exposure limits for airborne linear siloxanes during spaceflight. *Journal of Inhalation Toxicology*, 25(13), 735-46.

McMullin, T.S., Lowe, E, Bartels, M.J., and Marty, M.S. (2008). Dynamic changes in lipids and proteins of maternal, fetal, and pup blood and milk during perinatal development in CD and Wistar rats. *Toxicological Sciences*, 105, 260-74.

McMullin, T.S., Hanneman, W.H., Cranmer, B.K., Tessari, J.D., and Andersen, M.E. (2007). Oral absorption and oxidative metabolism of atrazine in rats evaluated by physiological modeling approaches. *Toxicology*, 240, 1-14.

McMullin, T.S., Andersen, M.E., Tessari, J.D., Cranmer, B.K., and Hanneman, W.H. (2007). Estimating constants for metabolism of atrazine in freshly isolated rat hepatocytes by kinetic modeling. *Toxicology In Vitro*, 21, 492-501.

McMullin, T.S., Nagahara, A., Lund, T., Pak, T., Handa, R.J., Hanneman W.H., and Andersen, M.E. (2004). Evidence that atrazine and diaminochlorotriazine inhibit the estrogen/progesterone induced surge of luteinizing hormone in female Sprague-Dawley rats without changing estrogen receptor action. *Toxicological Sciences*, 79, 278-86.

Book Chapters

McMullin, T.S. and O'Brien, W. (2004). Pharmaceutical applications of PBPK modeling: Drugs. In: *Physiologically Based Pharmacokinetic (PBPK) Modeling: Science and Applications*, eds. M. B. Reddy, R. S. H. Yang, H. J. Clewell, III, and M. E. Andersen, John Wiley & Sons.

Hanneman, W.H., Andersen, M.E., Legare, M.E., French, C.T., McMullin, T.S., Broccardo, C., and Billings, R. (2004). The Exposure- Dose-Response Paradigm as it Relates to Toxicogenomics. In: *In Vitro Neurotoxicology: Principles and Challenges*. (Mannfred Hollinger, Ed), Humana Press Inc.