

Deborah Proctor

PRINCIPAL HEALTH SCIENTIST

CONTACT INFORMATION

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PROFESSIONAL PROFILE

Ms. Deborah Proctor has more than 20 years of experience in the environmental health risk assessment field, specializing in applied toxicology, mode of action evaluations for chemical carcinogens, environmental chemistry, human health risk assessment, exposure reconstruction, and quantitative dose-response analysis for the purpose of developing toxicity criteria.

Ms. Proctor has technical expertise for assessing the potential human health risk associated contaminated air, soil and groundwater; evaluating failure to warn litigation claims pursuant to California Proposition 65; designing risk-based remedial investigations; assessing the environmental fate and toxicity of metals in the environment; and determining the bioavailability of metals in soil and solid media. Ms. Proctor uses state-of-the-art scientific approaches to evaluate potential hazards and develop health-protective and science-driven remediation goals. She provides technical comments to regulatory agencies on policy and guidance documents, and technical support for public communication. Ms. Proctor has designed studies involving human volunteers and is experience with the use of Internal Review Boards (IRBs) and ethical requirements/considerations associated with research involving humans.

Ms. Proctor is a nationally recognized expert regarding the potential health risks associated with occupational and environmental exposure to chromium. She has published extensively in this field and managed research projects that are now the bases of federal and state regulatory health criteria.

Ms. Proctor specializes in environmental risk assessment for metals and inorganic chemicals, and has specific experience modeling exposure to perchlorate in produce, milk, human breast milk, food, and drinking water.

ACADEMIC CREDENTIALS AND PROFESSIONAL HONORS

B.S., Environmental Toxicology, University of California, Davis, 1988

Graduate Studies, Epidemiology, University of Pittsburgh, 1996–1998

PROFESSIONAL AFFILIATIONS

- Society for Risk Analysis (member)
- Association for Environmental Health Sciences (Scientific Review Board member)
- International Society of Exposure Assessment (member)
- Society of Toxicology (Councilor Risk Assessment Specialty Section)

PUBLICATIONS

Gujral, J.S., **D.M. Proctor**, S.H. Su, and J.M. Fedoruk. (2011). Water Adherence Factors for Human Skin. *Risk Analysis*. 31(8): 1271-1280.

Thompson, C.M., **D.M. Proctor**, M. Suh, L.C. Haws, C.D. Hebert, J.F. Mann, H.G. Shertzer, J.G. Hixon and M.A. Harris. Comparison of the Effects of Hexavalent Chromium in the Alimentary Canal of F344 Rats and B6C3F1 Mice Following Exposure in Drinking Water: Implications for Carcinogenic Modes of Action. (2011). *Toxicol Sci*. October 19, 2011. doi:10.1093/toxsci/kfr280.

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Proctor DM, Gatto NM, Hong SJ, Allamneni KP. Mode-of-action framework for evaluating the relevance of rodent forestomach tumors in cancer risk assessment. (2007). *Toxicol Sci*. 98(2):313–326.

Becker DS, Long ER, **Proctor DM**, Ginn TC. Toxicity and bioavailability of chromium in sediments associated with chromite ore processing residue. (2006). *Environ Toxicol Chem*. 25(10):2576–2583.

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

Proctor DM, Panko JP, Liebig EW, Scott PK, Mundt KA, Buczynski MA, Barnhart RJ, Harris MA, Morgan RJ,

Paustenbach DJ. Workplace airborne hexavalent chromium concentrations for the Painesville, Ohio chromate production plant (1943–1971). *Appl Occup Environ Hyg* 2003; 18(6):430–449.

Crump C, Crump KS, Hack E, Luippold RS, Mundt KA, Panko JP, Liebig EW, Paustenbach DJ, **Proctor DM**. Dose-response and risk assessment of airborne hexavalent chromium and lung cancer mortality. *Risk Anal* 2003; 23(6):1155–1171.

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

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Proctor DM, Fehling KA, Shay EC, Finley BL. Assessment of human health and ecological risks posed by the uses of steel-industry slags in the environment. *Hum Ecol Risk Assess* 2002; 8(4):681–711.

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Zak M, **Proctor D**. Using risk-based corrective action to facilitate redevelopment of a former steel mill brownfields: A success story. *Environmental Manager of the AWMA*, p. 9–12, 1997.

Finley B, Burton S, **Proctor D**, Panko J, Trowbridge K. A preliminary assessment of PCB risks to human health and the environment in the Lower Passaic River. *Environ Toxicol Chem* 1997; 52:95–118.

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Proctor D, Shay E, Scott P. Health-based soil action levels for trivalent and hexavalent chromium: A comparison to state and federal standards. *J Soil Contam* 1997; 6(6):595–648.

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Sheehan P, Meyer (Proctor) D, Sauer M, Paustenbach D. Assessment of the human health risks posed by exposure to chromium contaminated soils at residential sites. *J Toxicol Environ Health* 1991; 32:161–201.

BOOK CHAPTERS

Proctor DM. Hexavalent chromium. In: *Risk Encyclopedia*. Wiley & Sons, London, 2007 (in press).

Proctor DM, Harris M, Rabbe D. Risk assessment of chromium-contaminated soils: Twelve years of research to characterize the health hazards. Chapter 9, pp. 513–582. In: *Human and Ecological Risk Assessment: Theory and Practice*. Paustenbach DJ (ed), 2002.

ABSTRACTS AND PRESENTATIONS

Haws, L., **D. Proctor**, C. Thompson, and M. Harris. Research Plan to Fill Data gaps in the Mode of Action for Cancer Risk Assessment of Hexavalent Chromium in Drinking Water. Presented at the Society of Toxicology's 50th Annual Meeting, March 6-10, 2011. Washington, D.C.

Proctor, D., C. Thompson, L. Haws, and M. Harris. Use of Mode of Action and Pharmacokinetic Findings to Inform the Cancer Risk Assessment of Ingested Cr(VI): A Case Study. Presented at the Society of Toxicology's 50th Annual Meeting, March 6-10, 2011. Washington, D.C.

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Gatto N, Kelsh M, HaMa D, Shu M, **Proctor D**. A meta-analysis of the relationship between occupational exposure to hexavalent chromium and cancers of the gastrointestinal tract. Abstract, Society of Toxicology Annual Meeting, Baltimore, MD, March 2009.

Proctor D, HaMai D. Human health risk assessment for environmental applications of steel slag: Differences between material-specific and default approaches. Poster Presentation, Society of Toxicology Annual Meeting, Baltimore, MD, March 2009.

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Leung H Madl A, **Proctor D**, Hays S, Cohen E. Scientific rationale for the derivation of an RfD for perchlorate. Abstract 1756. Society of Toxicology 44th Annual Meeting, Baltimore, MD, 2004. Awarded top five Risk Assessment Presentations at the conference.

Proctor D, Ohanian E. Health risk assessment of hexavalent chromium in drinking water: Carcinogenicity, research and regulation. Abstract 277. Society of Toxicology 42nd Annual Meeting, Salt Lake City, UT, 2003. Symposium Chairman.

Proctor D, Lau E, Cahill J, Kelsh M. Alternative reference population sensitivity analysis for the morality assessment of a hexavalent chromium exposed worker cohort. Abstract 2008. International Society of Environmental Epidemiology, 2002.

Proctor D, Hays S, et al. Rate of hexavalent chromium reduction by human gastric fluid. Abstract 1700. Society of Toxicology, Nashville, TN, 2002.

Proctor D, Williams P. Costs and benefits of compliance with alternative remediation standards at hexavalent chromium-contaminated sites. Abstract 1073. Society of Toxicology, Nashville, TN, 2002.

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Crump C, **Proctor D**, et al. Dose-response assessment for lung cancer mortality of an occupational cohort exposed to airborne hexavalent chromium. Abstract 774. Society of Toxicology, Nashville, TN, 2002. Awarded top five Risk Assessment Presentations at the conference.

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Malsch PA, **Proctor DM**, Finley BL. 1994. Estimation of chromium inhalation RfC by the benchmark dose method. Society of Toxicology 33rd Annual Meeting, March 1994.

Gargas ML, Finley BL, Norton RL, **Proctor DM**, Paustenbach DJ. Biomonitoring of chromium (Cr) exposure by urinary excretion: Bioavailability and sampling design. Society of Toxicology 33rd Annual Meeting, March 1994.

Proctor DM, Finley BL. A methodology for setting soil cleanup goals based on protection of allergic contact dermatitis. Society for Risk Analysis Annual Meeting, December 5–8, 1993.

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Proctor DM, Scott PK, Fehling KA. Comparison of exposure estimates obtained using conservative state-mandated methodology, refined point estimate approach, and Monte Carlo analyses. Society for Risk Analysis Annual Meeting, December 5–8, 1993.

Proctor DM, Ulrich GA, Agnew WW. 1993. Application of human health risk assessment in oil and gas production. No 26362. Society of Petroleum Engineers International Annual Technical Conference and Exhibition, October 3–6, 1993.

Proctor DM, Finley BL, Paustenbach DJ. An alternative to the USEPA's proposed inhalation reference concentration for hexavalent and trivalent chromium. Abstracts of the 32nd Annual Meeting Society of Toxicology 1993; 13(1):416.

Proctor DM, Trowbridge KR. An analysis of risk driven site investigation and remediation. Abstract 9970. Society of Environmental Toxicology and Chemistry 13th Annual Meeting, October 8–12, 1992.

TECHNICAL REPORTS

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Proctor DM, Gujral J, Su S, Fowler Jr. JF. Repeated open application test for allergic contact dermatitis due to hexavalent chromium [Cr(VI)] as potassium dichromate: Risk assessment for dermal contact with Cr(VI). FPRL #012406. Environmental Protection Agency, Washington, DC, September 2006.