

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

Driscoll, SK, McArdle, ME, Plumlee, MH, and **Proctor D**. Evaluation of hexavalent chromium in sediment pore water of the Hackensack River, New Jersey, USA. *Environmental Toxicology and Chemistry*. Published on-line December 10, 2009.

Menzie, C, Ziccardi, L., **Proctor D**, et al. Importance of Considering the Framework Principals in Risk Assessment of Metals. *Environmental Science and Technology*. Feature Article. 2009: 43:8478-8482.

Scott PK, **Proctor D**. Soil suspension/dispersion modeling methods for estimating health-based soil cleanup levels of hexavalent chromium at Chromite Ore Processing Residue sites. *Air Waste Manage Assoc* 2008; 58:384–403.

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

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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.

Proctor DM Fehling KA, Shay EC, et al. Physical and chemical characteristics of blast furnace, basic oxygen furnace, and electric arc furnace steel industry slags. *Environ Sci Technol* 2000; 34:1576–1582.

Fowler JF, Kauffman CL, Marks JG, **Proctor DM**, Fredrick MM, et al. 1999. An environmental hazard assessment of low-level dermal exposure to hexavalent chromium in solution among chromium sensitized volunteers. *JOEM*, 41(3):150–160.

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

Proctor DM, Fredrick MM, et al. Prevalence of chromium allergy in the United States and its implications for setting soil cleanup levels: A cost-effectiveness case study. *Regul Toxicol Pharmacol* 1998; 28:27–37.

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.

Proctor D, Harris M, Finley B (eds). Chromium in soil: Perspectives in chemistry, health and environmental regulation. *Special Issue of J Soil Contam* 1997.

Proctor D, Zak M, Finley B. Resolving uncertainties associated with the construction worker soil ingestion rate: A perspective for risk-based remedial goals. *Hum Ecol Risk Assess* 1997.

Paustenbach D, Fredrick M, Panko J, Finley B, **Proctor D**. Urinary chromium as a biomarker of environmental exposure: What are the limitations? *Regul Toxicol Pharmacol* 1997; 26:523–534.

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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Malsch PA, **Proctor DM**, Finley BL. Estimation of a chromium inhalation reference concentration using the benchmark dose method: A case study. *Regul Toxicol Pharmacol* 1994; 20:58–82.

Finley BL, **Proctor DM**, Paustenbach DJ. 1992. An alternative to the USEPA's inhalation reference concentrations for hexavalent and trivalent chromium. *Regul Toxicol Pharmacol* 16:161–176.

Paustenbach DJ, Meyer (Proctor) DM, Sheehan PJ, Lau V. The assessment and quantitative uncertainty analysis of the health risks to workers exposed to chromium contaminated soils. *Toxicol Indust Health* 1991; 7(3):159–196.

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

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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.

PRESENTATIONS WITH PUBLISHED ABSTRACTS

Thompson, C., **Proctor D.**, Haws, L., and Harris, M. Mode-of-action for the cancer risk assessment of ingested hexavalent chromium: Identifying and resolving data gaps. Toxicologist. Abstract 1937. Presented at the Society of Toxicology Conference, Salt Lake City, UT, March 2010.

Proctor D., Haws, L., Tachovsky, A., and Harris, M. Critical Evaluation of the data underlying the USA Today rankings of air quality at schools. Toxicologist. Abstract 1909. Presented at the Society of Toxicology Conference, Salt Lake City, UT, March 2010.

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.

Gujral JS, **Proctor DM,** Su SH, Fedoruk MJ. Water adherence factors for human skin. Poster, International Society for Exposure Analysis and International Society for Environmental Epidemiology, Pasadena, CA, October 13–16, 2008.

Gujral JS, Fowler JF, Jr., Su SH, Morgan D, **Proctor DM.** Repeated open application tests for allergic contact dermatitis due to hexavalent chromium [Cr(VI)]: Risk assessment for dermal contact with Cr(VI). 3rd Conference of Occupational and Environmental Exposure of Skin to Chemicals, Golden, CO, June 17–20, 2007.

Hong S, **Proctor D,** Finley B. Assessment of LA sewage spills on Santa Monica Bay beaches. Society of Toxicology 45th Annual Meeting, San Diego, CA, March 2006.

Hong SJ, **Proctor DM,** Finley BL. Exposure to sewage spill-related pathogens at Santa Monica Bay beaches. 4th Society of Environmental Toxicology and Chemistry World Congress and 25th Annual Meeting, Portland, OR, November 2004.

Proctor D. Exposure assessment for perchlorate in milk. Abstract 421. Society of Toxicology 45th Annual Meeting, New Orleans, LA, 2005.

Proctor D, Hong S. Relevance of rodent forestomach tumors in cancer risk assessment. Abstract 382. Society of Toxicology 45th Annual Meeting, New Orleans, LA, 2005.

Proctor D, Cohen E, Leung H, Hays S, BarraJ L, Madl A. Exposure assessment for perchlorate in drinking water. Abstract 1754. Society of Toxicology 44th Annual Meeting, Baltimore, MD, 2004.

Madl A, **Proctor D**, Leung H, Goswami E, Hays S, Cohen E. Derivation of an RfD for perchlorate: Identifying a Critical Health Endpoint and Most Sensitive Subpopulation. Abstract 1755. Society of Toxicology 44th Annual Meeting, Baltimore, MD, 2004.

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Proctor D, Lau E, Cahill J, Kelsh M. Alternative reference population sensitivity analysis for the mortality 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.

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contact dermatitis in Cr(VI)-sensitized subjects following prolonged contact with Cr(VI) in solution. Society of Toxicology, March 12, 1997.

Scott P, **Proctor D**, Paustenbach D. Evaluating the 10% elicitation threshold for Cr(VI) in terms of mass per surface area using benchmark dose methods. Society of Toxicology, March 12, 1997.

Proctor DM. Strategies for approaching liability using risk based corrective action (RBCA). Industrial Site Recycling Conference (ISRC), Pittsburgh, PA, April 8, 1997.

Proctor D, Shay E, Scott P. Health-based soil action levels for trivalent and hexavalent chromium: A comparison to state and federal standards. Association for the Environmental Health of Soils (AEHS), Newport Beach, CA, March 13, 1996.

Proctor D, Fehling KA, Scott PK. Use of health risk assessment to facilitate redevelopment of a former steel production site. Society for Risk Analysis Annual Conference and Exposition, December 7, 1995.

Proctor DM, Scott PK, Finley BL. Approach for determining generic health based soil action levels for trivalent and hexavalent chromium at residential and industrial sites. Abstract F4.16. Society for Risk Analysis Annual Conference and Exposition, December 6, 1994.

Proctor DM, Malsch PA, Gargas ML. Considerations for determining appropriate reference doses for soluble and insoluble trivalent chromium compounds. Abstract P1.26. Society for Risk Analysis Annual Conference and Exposition, December 5, 1994.

Proctor DM. Chromium speciation and risk assessment issues. Ohio Chapter Society for Risk Analysis, June 29, 1994.

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.

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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.

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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.

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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 CopperShield®: Risk assessment for dermal contact with Cr(VI). FPRL #012506. Environmental Protection Agency, Washington, DC, July 2006.

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