

G. Fred Lee
Summary of Expertise and Experience in Hazard/Risk Assessment

Education

BA, San Jose State University, Sanitary Science/Public Health, 1955

Included courses in biological sciences and public health

MS Public Health, University of North Carolina Chapel Hill NC, 1957

Included courses in chemistry and environmental engineering

PhD, Harvard University, Cambridge, MA, Environmental Engineering with minors in Public Health and Aquatic Chemistry

Included courses in environmental engineering, water and wastewater treatment, hydraulics, and advanced-level chemistry

The degrees in public health included formal education on impacts of disease organisms and chemicals on human health, aquatic/terrestrial organisms, and the environment, as well as on sources, significance, fate, and control of disease organisms and chemicals in the environment.

Positions

For 30 years held university graduate-level faculty positions at several US universities. In those positions he led and supervised the MS and PhD degree thesis and dissertation research of more than 90 graduate students; that research was devoted to impacts of chemicals in the environment on water quality, aquatic life, and public health, and the control of such chemicals. A list of students whose work he supervised, and the topics of their projects is available on Dr. Lee's web site www.gfredlee.com. During his 30-year graduate faculty teaching and research career, Dr. Lee conducted about \$5 million of research and published about 500 papers and reports on the findings of that research. Many of those publications are available as downloadable files from his web site. Since retiring from university teaching and research in 1989 he has worked with Dr. Anne Jones-Lee, his wife, in their fulltime private consulting practice. In that work they have developed another 600 papers/reports devoted to findings of significance in the environmental quality field, which are also available on their website.

Dr. Lee has specialized in the development and appropriate use of water quality criteria for protection of aquatic life and public health. Examples of his involvement include: In the 1970s the Public Health Service (predecessor to the US EPA) asked Dr. Lee to conduct a review of appropriate water standards for PCBs in drinking water. On behalf of the National Academy of Sciences/Engineering he was an invited reviewer of the draft Water Quality Criteria of 1972. He participated in the American Fisheries Society's review of the US EPA Red Book criteria (including PCBs) of 1976. He was an invited peer-reviewer of the US EPA 1987 Water Quality Criteria.

Much of Dr. Lee's work has been pioneering. His work on sources, fate, and impacts of PCBs in the environment in the late 1960s and 1970s was some of the first work done in this country on the topic. In the 1970s he pioneered in the development of the hazard assessment approach for evaluating the impact of chemicals on aquatic life and human health through water and food ingestion. He has also been actively involved in the use and reliability of various modeling approaches for risk assessment in evaluating the impacts chemicals on public health and the

environment. He has published numerous professional papers on this approach including:

Lee, G.F., and Jones-Lee, A., "Impact of Municipal and Industrial Non-Hazardous Waste Landfills on Public Health and the Environment: An Overview," Prepared for California EPA Comparative Risk Project, Sacramento, CA, May (1994).
http://www.gfredlee.com/Landfills/cal_risk.pdf

Lee, G. F. and Jones-Lee, A., "Appropriate Use of Numeric Chemical Water Quality Criteria," *Health and Ecological Risk Assessment*, 1:5-11 (1995).
<http://www.gfredlee.com/SurfaceWQ/chemcri.pdf>

Lee, G.F., and Jones-Lee, A., "Appropriate Monitoring/Evaluation of Stormwater Runoff from Superfund Sites," Submitted for publication in the DOE "Risk Excellence Notes," available as Report of G. Fred Lee & Associates, El Macero, CA, May (2000).
<http://www.gfredlee.com/Runoff/sfmonitor.pdf>

Lee, G. F. and Jones-Lee, A., "The Single Chemical Probabilistic Risk Assessment Approach Is Inadequate for OP Pesticide Aquatic Life Toxicity," *Learned Discourses, SETAC News* 19(6):20-21 November (1999). http://www.gfredlee.com/Runoff/learned_discourse.pdf

Lee, G. F. and Jones-Lee, A., "Development of a Stormwater Runoff Water Quality Evaluation and Management Program for Hazardous Chemical Sites," (1997). [Published in condensed version as Lee, G.F. and Jones-Lee, A., "Stormwater Runoff Water Quality Evaluation and Management Program for Hazardous Chemical Sites: Development Issues," *Superfund Risk Assessment in Soil Contamination Studies: Third Volume, ASTM STP 1338, American Society for Testing and Materials*, pp. 84-98 (1998).]
<http://www.gfredlee.com/Runoff/stmhypap.pdf>

Lee, G.F. and Jones, R.A., "A Risk Assessment Approach for Evaluating the Environmental Significance of Chemical Contaminants in Solid Wastes," IN: *Environmental Risk Analysis for Chemicals*, Van Nostrand, New York, pp. 529-549 (1982).
<http://www.gfredlee.com/HazChemSites/SiteSpecificTCLP.pdf>

Lee, G. F. and Jones-Lee, A., "Public Health Significance of Waterborne Pathogens in Domestic Water Supplies and Reclaimed Water," Report to State of California Environmental Protection Agency Comparative Risk Project, Berkeley, CA, 27pp., December (1993).
<http://www.gfredlee.com/WSWQ/path-2.htm>

Lee, G. F., Jones-Lee, A. and Taylor, S. "Evaluation of the Water Quality Significance of OP Pesticide Toxicity in Tributaries of Upper Newport Bay, Orange County, CA," IN: *Ninth Symposium on Environmental Toxicology and Risk Assessment: Recent Achievements in Environmental Fate and Transport, ASTM STP 1381*, pp 35-51 (2000).
http://www.gfredlee.com/Watersheds/oppesticide_unb.pdf

Volume 9 Number 5, June 5, 2006 Topics: Review of comparative risk issues in water quality management; regulation of arsenic in drinking water

[<http://www.gfredlee.com/Newtsletter/swnewsV9N5.pdf>]

In the 1970s and 1980s Dr. Lee conducted more than a million dollars in research into the release and availability to aquatic life of sediment-associated chemical contaminants including PCBs and other organic pollutants. That work included developing reliable test methods for assessing the uptake of such contaminants by aquatic test organisms.

Beginning in the 2000s Dr. Lee was appointed as a US EPA-supported Technical Assistance Grant (TAG) advisor to the public on the adequacy of the US EPA Superfund site investigation and remediation of the LEHR Site located on the University of California Davis campus in Davis, CA. That site is polluted by radioactive wastes, organic chlorinated solvents, high molecule weight organics, heavy metals, arsenic, among others. In that position he had to conduct critical reviews of the LEHR site risk assessments made by site consultants and the US EPA. Examples of Dr. Lee's comments on the LEHR site risk assessment include the following:

Lee, G. F., "Comments on Draft LEHR/SCDS Site-Wide Ecological Risk Assessment Prepared by BBL, Dated February 2006," Comments Submitted to DSCSOC by G. Fred Lee, G. Fred Lee & Associates, El Macero, CA, April 27 (2006).

<http://www.gfredlee.com/DSCSOC/2006/LEHR-ERA-comments.pdf>

Lee, G. F., "Comments on 'Draft Site-Wide Risk Assessment, Volume I - Human Health Risk Assessment (Part C – Risk Characterization for UC Davis Landfill Units)' Prepared by Brown and Caldwell, August 12, 2005," Comments submitted to DSCSOC by G. Fred Lee, G. Fred Lee & Associates, El Macero, CA, September 8 (2005).

<http://www.gfredlee.com/DSCSOC/2005/BrownCaldwellCom9-8-05.pdf>

Lee, G. F., "Comments on 'Draft Site-Wide Risk Assessment, Volume I: Human Health Risk Assessment (Part B-Risk Characterization for DOE Areas)' Draft E, dated August 20, 2005," Comments submitted to DSCSOC by G. Fred Lee, G. Fred Lee & Associates, El Macero, CA, September 7 (2005). <http://www.gfredlee.com/DSCSOC/2005/LEHR-DOE-HHR.pdf>

Lee, G. F., "Comments on 'Draft Site-Wide Risk Assessment, Volume I: Human Health Risk Assessment (Part B-Risk Characterization for DOE Areas)' Draft E, dated August 20, 2005," Comments submitted to DSCSOC by G. Fred Lee, G. Fred Lee & Associates, El Macero, CA, September 7 (2005). <http://www.gfredlee.com/DSCSOC/2005/LEHR-DOE-HHR.pdf>

Dr. Lee also served as US EPA-supported TAG advisor for the Lava Cap Superfund site, and for the Brown and Bryant Superfund site in Arvin, CA that involves groundwater pollution of public water supply by herbicides. Dr. Lee's report and publications on hazardous chemical site investigation, risk assessment and site remediation are available in the Hazardous Chemical Sites section of his website [<http://www.gfredlee.com/phazchem2.html>] Reports developed associated with his service as a TAG advisor, including those for the LEHR, Lava Cap, and Brown and Bryan Arvin NPL Superfund sites are also available on his website [<http://www.gfredlee.com/Tag-Advisor-Work.html>].

Overall, Dr. Lee's academic education in the biological and chemical sciences, environmental

engineering, and public health; the breadth and depth of his research and professional publications; his recognized leadership activity in the professional community; and his vast experience addressing environmental quality problems on behalf of public (governmental) and private clients combine to make him highly qualified to undertake research and consulting on assessing and controlling impacts of chemicals on public health and the environment.