

1. EDUCATION:

B.S., Biology, 1967, Georgetown University, Washington DC.
M.A., Pharmacology, 1971, Stanford University, Palo Alto CA.
Ph.D., Biological Science, 1979, Oregon State University, Corvallis OR

2. CERTIFICATION:

Diplomate of the American Board of Toxicology, Inc.
Certified in General Toxicology, 1984. Recertified: 1989, 1994, 1999

3. PROFESSIONAL ACTIVITIES:

Society of Toxicology, member since 1984

Risk Assessment Specialty Section:

1996-97, Past-President and Councilor
1995-96, President
1994-95, Vice-President
1993-94, Vice-President-Elect
1989-2002, Awards Committee (Chair: 1989-1991)

Northern California Chapter:

1997-98, Past-President and Councilor
1996-97, President
1995-96, President-Elect
1994-95, Vice President
1987-89, Chair, Program Committee
Distinguished Service Award, 1990

American Board of Toxicology, Inc.
Member of the Board, 1999

4. EMPLOYMENT HISTORY

1992 - Present: Staff Toxicologist, Human & Ecological Risk Division, Department of Toxic Substances Control, California Environmental Protection Agency, Sacramento, CA

Duties:

Review, critique, and approve assessments of risk to human health and ecological risk assessments at military facilities and other hazardous waste sites and permitted facilities in California.

Provide technical support to the Office of Military Facilities, who regulate cleanup of federal facilities. Consult in matters related to toxicology and risk assessment for the cleanup of hazardous wastes at active and closing military bases.

Act as Department's expert on ambient concentrations of metals in California soils (see <http://www.dtsc.ca.gov/docs/sppt/herd/backgrnd.html>).

Construct multi-pathway risk assessment to identify numerical criteria for classifying hazardous levels of metals and organic chemicals in waste. Used Monte Carlo methods in several different exposure settings to identify levels protective of human health. Department's proposal reviewed by the National Academy of Sciences ("Risk-Based Waste Classification in California", National Research Council, 1999).

Provide technical support to the Site Mitigation and Hazardous Waste Management Programs in matters related to toxicology and risk assessment.

Currently or previously participating in project teams for environmental cleanup at dozens of private sector sites and the Federal facilities listed below:

<u>Air Force:</u>	Air Force Plant 42 Beale Air Force Base Castle Air Force Base George Air Force Base	Mather Air Force Base McClellan Air Force Base Vandenberg Air Force Base
<u>Army:</u>	Fort Irwin National Training Center Fort Ord	Rio Vista Army Reserve Center Sacramento Army Depot
<u>Navy:</u>	Alameda Naval Air Station Barstow Marine Corps Logistics Base Naval Weapons Station Concord El Toro Marine Corps Air Station Imperial Beach Naval Auxiliary Landing Field Long Beach Naval Shipyard Long Beach Naval Station Los Angeles Naval and Marine Corps Reserve Center Naval Command Control and Ocean Surveillance Center, Morris Dam Mare Island Naval Shipyard	Oakland Fleet Industrial Supply Center Oakland Fleet Industrial Supply Center, Alameda Annex Point Molate Naval Fuel Depot Point Mugu Naval Air Weapons Station Port Hueneme Naval Construction Battalion Center San Diego Naval Station San Diego Naval Training Center San Pedro Defense Fuel Supply Point Seal Beach Naval Weapons Station Tustin Marine Corps Air Station Twentynine Palms Marine Corps Air Ground Combat Center
<u>NASA:</u>	Crows Landing Naval Auxiliary Landing Field	Moffett Federal Airfield

Special Accomplishments

- (i) **2002**: Served as invited peer reviewer for American Chemistry Council for proposals on methods of assessing cumulative risk for chemical mixtures.
- (ii) **2000**: Received Certificate of Recognition for contributions to project team for cleanup of Fleet Industrial Supply Center Alameda Annex.
- (iii) **1999**: Served as invited peer reviewer for Health Canada for their assessment of toxicity and margin of exposure of humans to nonyl phenol and its ethoxylates.
- (iv) **1998**: Received Sustained Superior Accomplishment Award from California Department of Toxic Substances Control for risk assessment of metals in hazardous waste
- (v) **1997**: Principal author of statewide guidance on distinguishing ambient concentrations of metals from releases of metals to soil.
- (vi) **1997**: Served as invited peer reviewer for USEPA Office of Water, Health Advisory for Methyl-*tert*-butylether (MTBE).
- (vi) **1996-present**: Peer reviewer for Toxicology Excellence for Risk Assessment (TERA) of Cincinnati OH. This non-profit group produces peer-reviewed toxicity criteria for government and industry. Participated in peer review panels for the following chemicals and subjects: acrolein, acrylamide, acrylonitrile, ammonium perchlorate, butyl benzyl phthalate, cadmium, carbon disulfide, dimethyl formamide, ethylene glycol, ethylene oxide, hexachlorobutadiene, hexavalent chromium, methylene chloride, methyl mercury, and *in vitro* bioavailability of lead and arsenic. [See <http://www.tera.org/peer> for details.]
- (vii) **1995**: Collaborated with USEPA Region IX, U. S. Army Corps of Engineers, and contractors to design, produce, review, and approve the first sitewide risk assessments for a military base in California. This included human health and ecological risk assessments for Sacramento Army Depot, the first base in the nation transferred out of the Department of Defense and into private hands.
- (vii) **1990-Present**: Peer Reviewer for *Toxicological Sciences*, *Risk Analysis*, *Human and Ecological Risk Assessment*, and *CRC Critical Reviews in Toxicology*

Previous Positions

1992: Chief Toxicologist, ICF Kaiser Engineers, Oakland CA

Responsible for conducting risk assessments of chemical contamination for clients in the public and private sectors. Principal clients were General Electric, Union Pacific Railroad Corp., and USEPA. Additional responsibilities in marketing toxicology and risk assessment services.

1989 - 1991: Senior Technical Associate, IT Corp., Knoxville TN

Responsible for conducting risk assessments of chemical and mixed chemical and nuclear wastes for clients in the public and private sectors. Principal clients were Ciba-Geigy Corp., Georgia Power, U.S. Army Corps of Engineers, U.S. Dept. of Energy, and U.S. Air Force. Additional responsibilities in marketing toxicology and risk assessment services.

1986 - 89: Staff Toxicologist, Toxic Substances Control Program, California Department of Health Services, Sacramento, CA

Responsible for supporting toxicology and risk assessment efforts at hazardous waste sites and permitted facilities. Principal author or reviewer for 17 Applied Action Levels, which are statewide allowable exposure criteria for evaluating risk at hazardous waste sites. These criteria were developed principally through hazard identification and dose-response assessment. Acted as expert on environmental contamination with chlorinated solvents. . Provided special expertise in statistics and carcinogenic risk assessment.

1985 - 86: Staff Toxicologist, Medical Toxicology Branch, California Department of Food and Agriculture, Sacramento, CA

Responsible for review of data from animal toxicology studies submitted in support of applications for registrations of pesticides. Provided special expertise in statistics and carcinogenic risk assessment.

1983 - 84: Manager of Toxicology, North American Science Associates, Irvine CA

Managed animal safety testing of medical devices and medical plastics. Testing included mice, rats, rabbits, and guinea pigs.

1982 - 83: Associate Toxicologist, Midwest Research Institute, Kansas City MO

Managed preclinical toxicological studies of an anti-cancer drug. Studies included rats, mice, and dogs.

1979 - 82: Staff Toxicologist, Raltech Division, Ralston Purina Corp., St. Louis MO

Conducted and interpreted very large scale toxicological studies of irradiated chicken meat in rats, mice, guinea pigs, hamsters, and dogs for the U. S. Army.

1974-76: Doctoral research at Argonne National Laboratory**1971-74:** Graduate coursework at Oregon State University**1969-70:** Graduate coursework at Stanford University

5. BIBLIOGRAPHY

Journal Articles

Klein, A.K., and Christopher, J.P. (1995), “Evaluation of crystalline silica as a threshold carcinogen”, *Scandinavian Journal of Work, Environment & Health*, 2(95):95-98.

Mcgovren, J.P., Nelson K.G., Lassus M., Craddock J.C., Plowman J., and Christopher, J. P. (1984), “Menogarol: A new anthracycline agent entering clinical trials”, *Investigational New Drugs*, 2(4):359-367.

Peraino, C., Fry, R.J.M., Staffeldt, E., and Christopher, J.P. (1977), “Enhancing effects of phenobarbitone and butylated hydroxytoluene on 2-acetylaminofluorene-induced hepatocarcinogenesis in the rat”, *Food and Cosmetics Toxicology*, 15:93-96.

Peraino, C., Fry, R.J.M., Staffeldt, E., and Christopher, J.P. (1975), “Enhancing effects of phenobarbital, amobarbital, diphenylhydantoin, and dichlorodiphenyltrichloroethane on 2-acetylaminofluorene-induced hepatocarcinogenesis in the rat”, *Cancer Research*, 35:2884-2890.

Abstracts and Presentations

Renzi, B., Christopher, J.P., Davis, B. K., Klein, A. K., and Wade, M. J.. “Lead-based Paint in soil: When worlds collide - CERCLA meets HUD”, presented at the Annual Meeting of the Society of Toxicology, San Francisco, March 2001.

Carlisle, J.C., Christopher, J.P., Davis, B.K., Klein, A.K., Renzi, B.E., and Wade, M.J., “Updated version of Cal/EPA’s LeadSpread model for predicting blood lead in children and adults”, presented at the Annual Meeting of the Society of Toxicology, Philadelphia, March 2000.

Christopher, J.P., Carlisle, J.C., Davis, B.K., Klein, A.K., Renzi, B.E., Wade, M.J., “Comparison of updated LeadSpread to Integrated Uptake, Exposure, and Biokinetic model (IEUBK) for predicting blood lead in children”, presented at the Annual Meeting of the Society of Toxicology, Philadelphia, March 2000.

Polisini, J., Christopher, J., and Prilepin, V. (1997), “Ambient concentrations of metals with low frequencies of detection in groundwater at US Navy bases in California”, presented at the 18th Annual Meeting of the Society for Environmental Toxicology and Chemistry, San Francisco, November 1997.

Christopher, J., Davis, B., and Wade, M. (1997), “Ambient levels of metals in soils at US Navy bases”, presented at the 18th Annual Meeting of the Society for Environmental Toxicology and Chemistry, San Francisco, November 1997.

DeShields, B., Meagher, R., Faler, J., and Christopher, J. (1997), “Exposure Assessment: Evaluation of the distribution of lead in soil at a former firing range”, presented at the 18th Annual

Meeting of the Society for Environmental Toxicology and Chemistry, San Francisco, November 1997.

Christopher, J.P., Askvig, D., Davis, B.K., Findikaki, I, Kuo, D.K.C., Prilepin, V, Serda, S.M., and Wade, M.J (1997), “Ambient levels of metals in soils at US Navy bases,” supplement to *Fundamental and Applied Toxicology, The Toxicologist*, Vol. 36, No. 1, Part 2.

Christopher, J.P., Butler, E.G., Klein, A.K., Davis, B.K., and Wade, M.J. (1996), “CalTOX stochastic risk assessment compared to standard CERCLA methods”, *Fundamental and Applied Toxicology*, 30, No 1, Part 2:113.

Butler, E.G., Klein, A.K., Davis, B.K., Christopher, J.P., Wade, M.J., Wong, J.J., and McKone, T.E. (1996), “Use of CalTOX to guide site characterization and risk management decisions for contaminated soil”, *Fundamental and Applied Toxicology*, 30, No 1, Part 2:113-114.

Christopher, J.P. (1995), “Selecting toxicity criteria and chemicals of concern”, Continuing Education Course on Basic Applications in Risk Assessment, Annual Meeting of the Society for Risk Analysis, Baltimore MD.

Davis, B.K., Christopher, J.P., and Klein, A.K. (1995), “Risk assessment for multiple source exposures”, *The Toxicologist*, 15(1):36.

Carlisle, J.C., and Christopher, J.P. (1994), “Carcinogenic risk from lead: Stochastic vs deterministic assessment”, *The Toxicologist*, 14(1):153.

Christopher, J. P., and Haynesworth, B. S. (1992), “Impact of recent developments in risk assessment on cleanup criteria at former manufactured gas plant sites”, presented at Industrial Pollution Control Conference, Atlanta, Georgia, February 1992.

Howd, R. Christopher, J.P., Wong, J., and Wolfenden, A. (1990), “Development of risk assessment regulations to provide ARARs for waste site cleanup”, HAZMACON 1990, Anaheim California, April, 1990.

Brantner, J.H., Christopher, J.P., and Wong, J.J. (1989), “Analysis of NTP carcinogenicity bioassay of pentachlorophenol”, Annual Meeting of the Society for Risk Analysis, San Francisco CA.

Christopher, J.P. (1989), “Applied Action Levels in air and water for trichloroethylene”, Annual Meeting of the Society of Toxicology, Atlanta GA.

Becker, R.A., and Christopher, J.P. (1989), “Applied Action Levels in air and water for chloroform”, Annual Meeting of the Society of Toxicology, Atlanta GA.

Liao, C.L., Cavender, F.L., and Christopher, J.P. (1989), “Carcinogenic risk assessment of DDT and congeners”, Annual Meeting of the Society of Toxicology, Atlanta GA.

Brantner, J.H., Christopher, J.P., and Wong, J.J. (1988), “Analysis of NTP carcinogenicity bioassay of pentachlorophenol”, Annual Meeting of the Society of Toxicology, Dallas TX.

Christopher, J.P., Dahlgren, R.R., Monti, K.L., Ronning, D.C., Campbell, L.A., Thayer, D.W., and Wierbicki, E (1985), “Safety studies with irradiation-sterilized chicken meat: I. Chronic toxicity and oncogenicity in CD-1 mice”, Annual Meeting of the Society of Toxicology, San Diego CA.

Christopher, J.P., Dahlgren, R.R., Monti, K.L., Ronning, D.C., Campbell, L.A., Thayer, D.W., and Wierbicki, E (1985), “Safety studies with irradiation-sterilized chicken meat: II. Multigeneration reproduction in CD-1 mice”, Annual Meeting of the Society of Toxicology, San Diego CA.

Christopher, J.P., Ruecker, F.A., Monti, K.L., Ronning, D.C., Campbell, L.A., Thayer, D.W., and Wierbicki, E (1985), “Animal Feeding Studies with irradiation-sterilized chicken meat: III. Chronic toxicity and reproductive performance in beagle dogs”, Annual Meeting of the Society of Toxicology, San Diego CA.

Christopher, J.P., and Wallin, R.F. (1984), “Biocompatibility testing of polymers”, West Coast Medical Plastics Conference, Anaheim CA (Voted best presentation of the conference).

Christopher, J.P. (1984), “Pyrogen control and testing”, FDA-sponsored workshop for users of contract sterilization, Santa Ana CA.

Christopher, J.P., Unwin, S.E., Carter, J.L., Shellenberger, T.E., Neal, B.H., and Kastello, M.D. (1983), “Acute intravenous toxicity of Menogarol in beagle dogs”, Annual Meeting of the American Association for Cancer Research, Seattle WA.

Submittal to the National Academy of Sciences

Cal/EPA (1998), “Risk-Based Criteria for Non-RCRA Hazardous Waste, A Report to the National Research Council Introducing Proposed Changes for Definition of Hazardous Waste in California Regulation”, Department of Toxic Substances Control, Human and Ecological Research Division and Hazardous Materials Laboratory, June 1998.

Cal/EPA Guidance Documents for Risk Assessment

Cal/EPA (1992), “Supplemental Guidance for Human Health Multi-Media Risk Assessments for Hazardous Waste Sites and Permitted Facilities”, Office of the Scientific Advisor, Department of Toxic Substances Control, July 1992. Available at http://cwo.com/~herd1/downl_in.htm.

Cal/EPA (1994), “Preliminary Endangerment Assessment Guidance Manual”, Department of Toxic Substances Control, Site Mitigation Program and Office of the Scientific Advisor, January 1994.

Cal/EPA (1996a), “Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities, Part A: Overview”, Department of Toxic Substances Control, Human and Ecological Risk Division, 4 July 1996. Available at http://cwo.com/~herd1/downl_in.htm.

Cal/EPA (1996b), “Guidance for Ecological Risk Assessment at Hazardous Waste Sites and Permitted Facilities, Part B: Scoping Assessment”, Department of Toxic Substances Control, Human and Ecological Risk Division, 4 July 1996. Available at http://cwo.com/~herd1/downl_in.htm.

Cal/EPA (1997), “Selecting Inorganic Constituents as Chemicals of Potential Concern in Risk Assessments at Hazardous Waste Sites and Permitted Facilities, Final Policy,” Human and Ecological Risk Division, Department of Toxic Substances Control, February 1997. Available at http://cwo.com/~herd1/downl_in.htm.

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Canady, R., Maczka, C.A., and Christopher, J.P. (1989), “Applied Action Levels for paraquat”, California Department of Health Services, Toxic Substances Control Division.

Cavender, F.L., Butler, E.G., and Christopher, J.P. (1989), “Applied Action Levels for chlordane”, California Department of Health Services, Toxic Substances Control Division.

Silverstein, E.M., Maczka, C.A., and Christopher, J.P. (1989), “Applied Action Levels for methyl parathion”, California Department of Health Services, Toxic Substances Control Division.

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Maczka, C.A., Howd, R.A., and Christopher J. P. (1988), “Applied Action Levels for 1-2-dichloroethane”, California Department of Health Services, Toxic Substances Control Division.

Maczka, C.A., Bush, J., Christopher, J.P., and Wade, M.J. (1988), “Applied Action Levels for nickel”, California Department of Health Services, Toxic Substances Control Division.

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Christopher, J.P., and Cavender, F.L. (1988), “Applied Action Levels for vinyl chloride”, California Department of Health Services, Toxic Substances Control Division.

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Cavender, F.L., Page, N.P., Liao, C.L., and Christopher, J.P. (1987) Cavender, F.L., “Applied Action Levels for DDD”, California Department of Health Services, Toxic Substances Control Division.

Cavender, F.L., Page, N.P., Liao, C.L., and Christopher, J.P. (1987) Cavender, F.L., “Applied Action Levels for DDT”, California Department of Health Services, Toxic Substances Control Division.

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Charnley, G., Thorslund, T., Brantner, J.H., Wade, M.J., and Christopher, J.P. (1987), “Applied Action Levels for chromium VI”, California Department of Health Services, Toxic Substances Control Division.

Silverstein, E.M., Maczka, C.A., DiZio, S.M., and Christopher, J.P. (1987), “Applied Action Levels for ammonia”, California Department of Health Services, Toxic Substances Control Division.

Maczka, C.A., Bush, J., Wade, M.J., and Christopher, J.P. (1987), “Applied Action Levels for nickel”, California Department of Health Services, Toxic Substances Control Division.

Christopher, J.P. (1986), “Applied Action Levels for chloroform”, California Department of Health Services, Toxic Substances Control Division.

Technical Reports on Contract Research

Christopher, J. P. (1994), “Qualitative and quantitative evaluation of the chronic toxicity and carcinogenicity of sulfur mustard [*bis*(2-chloroethyl)sulfide]”, prepared for Dames & Moore, Inc., February 1994.

Christopher, J.P., Carter, J.L., Unwin, S.E., Shellenberger, T.E., Neal, B.H., and Kastello, M.D. (1983), “Phase II report of preclinical toxicological evaluation of Menogarol (NSC-269,148) in CD2F1 mice, Sprague-Dawley rats, and beagle dogs”, 671 pp., National Cancer Institute Prime Contract No. NO-1-CM-17365, July 1983.

Christopher, J.P., Besancenez, J., Cuca, G.C., Dahlgren, R.R., Israelson, E.L., Miranti, R.A., Monti, K.L., Reutzel, L.F., Ruecker, F.A., Ronning, D.C., Scheidt, A.B., Thomson, G.M., and Troup, C.M. (1983), “Irradiation-sterilized chicken meat: A chronic toxicity and reproductive performance study in beagle dogs”, Final Report, April, 1983, 6,861 pp., submitted by Ralston Purina Company, in partial fulfillment of U.S. Department of Agriculture Contract No. 53-3K06-1-29.

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ized, cobalt-60 irradiated, and 10 MeV electron irradiated chicken meat”, Final Report, June, 1983, 10,328 pp., submitted by Ralston Purina Company in partial fulfillment of U.S. Department of Agriculture Contract No. 53-3K06-1-29.

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