

**TABLE 4 SCIENTIFIC AND TECHNICAL ADVICE**

<b>METHODS, MODELS AND DATA IN RISK ASSESSMENT</b>
<p><b>Atrazine:</b></p> <p>Revised Toxicology Chapter [Neuroendocrine Alterations Constitute Mode of Action for Reproductive and Developmental Toxicity (p36-42)] <a href="http://www.epa.gov/oppsrrdl/reregistration/atrazine/">www.epa.gov/oppsrrdl/reregistration/atrazine/</a></p> <p>Health Effects Revised Risk Assessment (p16,17,38, 39,41, 52) <a href="http://www.epa.gov/oppsrrdl/reregistration/atrazine/">www.epa.gov/oppsrrdl/reregistration/atrazine/</a></p> <p>FQPA Safety Factor Report (p 3-5) <a href="http://www.epa.gov/oppsrrd/reregistration/atrazine/">www.epa.gov/oppsrrd/reregistration/atrazine/</a></p> <p>The Grouping of a Series of Triazine Pesticides Based on a Common Mechanism of Toxicity (p 14-16, 33-34, Table on p 35-36) <a href="http://www.epa.gov/pesticides/cumulative/triazines/newdocket.htm">www.epa.gov/pesticides/cumulative/triazines/newdocket.htm</a></p>
<p><b>Air Pollutants (Particulate Matter and Ozone):</b></p> <p>Ambient Air Quality Criteria Document for Particulate Matter (Oxidative Stress as Putative MOA) <a href="http://cfpub2.epa.gov/ncea/cfm/partmatt.cfm">http://cfpub2.epa.gov/ncea/cfm/partmatt.cfm</a> EPA/600/P-99/002bF</p> <p>Ambient Air Quality Criteria Document for Ozone <a href="http://www.epa.gov/ttn/oarpg1/t1/reports/o3cdesum.pdf">http://www.epa.gov/ttn/oarpg1/t1/reports/o3cdesum.pdf</a></p> <p>Antimicrobial Registration and Efficacy Testing <a href="http://www.epa.gov/oppad001/">http://www.epa.gov/oppad001/</a></p>
<p><b>Arsenic:</b></p> <p>Hazard Identification and Toxicology Endpoint Selection for Inorganic Arsenic and Inorganic Chromium <a href="http://www.epa.gov/scipoly/sap/2001/october/hazard_final_document.pdf">http://www.epa.gov/scipoly/sap/2001/october/hazard_final_document.pdf</a></p>
<p><b>Chlorpyrifos:</b></p> <p>Hazard Assessment of the Organophosphates <a href="http://www.epa.gov/pesticides/op/chlorpyrifos.htm">http://www.epa.gov/pesticides/op/chlorpyrifos.htm</a></p> <p>FQPA Safety Factor Recommendations for the Organophosphates <a href="http://www.epa.gov/pesticides/op/chlorpyrifos.htm">http://www.epa.gov/pesticides/op/chlorpyrifos.htm</a></p>
<p><b>Cumulative Risk Assessment:</b></p> <p>Conducting a Risk Assessment of Mixtures of Disinfection By-Products for Drinking Water Treatment Systems EPA/600/R-03/040</p> <p>Feasibility of Performing Cumulative Risk Assessments for Mixtures of Disinfection By-Products in Drinking Water</p>

EPA/600/R-03/051

Supplemental Guidance for Conducting Health Risk Assessments of Chemical Mixtures

EPA/630/R-00/002

[www.epa.gov/raf/pdsf/chem\\_mix/chem\\_mix\\_08\\_2001.pdf](http://www.epa.gov/raf/pdsf/chem_mix/chem_mix_08_2001.pdf)

Revised Cumulative Risk Assessment

<http://www.epa.gov/pesticides/cumulative/pr-a-op>

Framework for Cumulative Risk Assessment

EPA/630/P02/001F

Developing Relative Potency Factors for Pesticide Mixtures: Biostatistical Analyses of Joint Dose Response

EPA/600/R-03/052

<http://oaspub.epa/eims/eimscomm.getfile?p>

**Dioxin:**

Exposure and Human Health Reassessment of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and Related Compounds (National Academy of Sciences Review)- Chapter 2 Mechanism(s) of Action-Contributions to Support Ah Receptor-Mediated Mechanism (p2-1, 2-21, 2-23)

<http://www.epa.gov/ncea/odfs/dioxin/nas-review/>

Assessment of the Health Risks of Dioxins: Re-evaluation of the Tolerable Daily Intake World Health Organization Consultation, 1998- Human Estimated Daily Intakes based on Animal Data from EPA (p25)

<http://www.who.int/ipcs/publications/en/exe-sum-final.pdf>

Report on Tolerable Daily Intake (TDI) of Dioxin and Related Compounds-Ministry of the Environment of Japan-bases TDI on Body-Burden Data from EPA (p.16)

<http://www.env.go.jp/en/rep/index.html>

Exposure and Human Health Reassessment of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and Related Compounds (National Academy of Sciences Review) -Chapter 9 Toxic Equivalency Factors for Risk Assessment based in part on Research from EPA (p 9-24-27, 9-36)

<http://www.epa.gov/ncea/odfs/dioxin/nas-review/>

Exposure and Human Health Reassessment of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and Related Compounds (National Academy of Sciences Review)- Chapter 6 Risk Characterization- EPA and International Community Accept TEQ of Dioxin and Related Compounds as Prudent Science Policy (p.6-5)

<http://www.epa.gov/ncea/odfs/dioxin/nas-review/>

Dioxin Reassessment (Contributing Authors)

EPA/600/R-04/123

Dose Response Modeling for TCDD. Part II: Health Assessment for 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD) and Related Compounds (Draft Final) (EPA/600/P-00/001Be) September 2000.

## EXPERTISE IN SUPPORT OF THE AGENCY'S MISSION

### **Cancer Risk Assessment Guidelines:**

Draft Final Guidelines for Carcinogen Risk Assessment

EPA 630/P-03/001A (pR1, R7)

<http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deit=55445>

[www.epa.gov/ncea/raf/cancer2003.htm](http://www.epa.gov/ncea/raf/cancer2003.htm)

Supplemental Guidance for Assessing Cancer Susceptibility from Early-Life Exposure to Carcinogens

EPA/630/R-03/003 (p1, 39,40,46)

<http://cfpub2.epa.gov/ncea/cfm/recordisplay.cfm?deit=55445>

### **Chemical Risk Assessments (Consultations):**

Report on the Risk Assessment of Disinfection By-Products in Drinking Water

EPA/600/03/039.

Evaluation of the Human Carcinogenic Potential of Ethylene Glycol Butyl Ether

EPA 600/R-04/123.

Disposition of Comments and Recommendations for Revisions to "Perchlorate Environmental Contamination: Toxicological Review and Risk Characterization External Review Draft (January 16, 2002)". Office of Research and Development, Washington D.C, 2003.

EPA/600/R-03/031 (Principal Author)

Metals Risk Assessment Framework (Human Health Section)

Journal of Environmental Monitoring 5:123-132N, 2003

Development of a Framework for Metals Assessment and Guidance for Characterizing and Ranking Metals

EPA 630/P-04/068A

<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=54465>

Polychlorinated Biphenyls: Human Health Aspects

Concise International Chemical Assessment Document 55, p50

World Health Organization-Peer Review

IRIS Peer Review of Risk Assessments:

2-Butoxyethanol Ethylene

Dibromide Ethylene

Methyl tert-Butyl Ether

Ethylene Quinoline

Ethylene Glycol Butyl Ether

Ethylene Methylacrylate

Phosgene

Isopropanol

Methanol

Styrene

Toluene

Methyl Chloroform

**Risk Assessment Guidelines and Models:**

Benchmark dose technical support document [external review draft]. Risk Assessment Forum, Washington, DC; EPA/630/R-00/001.

<http://cfpub.epa.gov/ncea/>

Help Manual for Benchmark Dose Software Version 1.3.  
EPA 600/R-00/014F

Neurotoxicity Risk Assessment for Human Health: Principles and Approaches  
Environmental Health Criteria Document 233 World Health Organization, Chair and Editor  
<http://www.inchem.org/documents/ehc/ehc/ehc223.htm>

Examination of EPA Risk Assessment Principles and Practices (Prepared for EPA Science Advisor  
<http://www.epa.gov/osa/ratf.htm>

Review of the Reference Dose and Reference Concentration Process  
EPA/630/P-02/002F  
[http://oaspub.epa.gov/eims/eimscomm.getfile?p\\_download\\_id=36836](http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=36836)

**Exposure Databases, Models, Publications:**

Air Toxics Reference Library  
[http://www.epa.gov/ttn/fer/risk\\_atra\\_main.html](http://www.epa.gov/ttn/fer/risk_atra_main.html)

Age Group Recommendations for Assessing Childhood Exposure and the Adequacy of Existing Exposure Factors Data for Children.  
[http://oaspub.epa.gov/eims/eimscomm.getfile?p\\_download\\_id=237196](http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=237196)

Demonstration of Low Cost, Low Burden Exposure Monitoring Strategies for Use in Longitudinal Cohort Studies - Volume I: Final Report and Volume II: Appendices,  
EPA/600/R-04/109

Exposure and Human Health Evaluation of Airborne Pollution from the World Trade Center for Disaster.  
EPA/600/P-2/002a.

Exposure Factors Handbook  
<http://www.epa.gov/ordntrnt/ORD/webpubs/expoure/>

Guidance on Selecting the Appropriate Age Groups for Assessing Childhood Exposures to Environmental Contaminants  
EPA/630/P-03/003A  
[http://oaspub.epa.gov/eims/eimscomm.getfile?p\\_download\\_id=429113](http://oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=429113)

Probabilistic Exposure Assessment for Children Who Contact CCA-Treated Playsets and Decks Using then SHEDS Model for the Wood Preservative Exposure Scenario  
EPA/600/X-04/089

Child-Specific Exposure Factor Handbook  
EPA/600/P-00/002B  
<http://oaspub.epa.gov/eims/eimscomm.getfile?p>.

Characterization of Indoor-Outdoor Aerosol Concentration Relationships during then Fresno PM Exposure Studies

EPA/600/J-01/114

<http://www.aaar.org/abst/v34n0113.htm>

Draft Protocol for Measuring Children's Non-Occupational Exposure to Pesticides by all Relevant Pathways. Office of Research and Development, Research Triangle Park, NC. EPA/600/R-03/026, September 2001.

Exposure Related Dose Estimating Model (ERDEM) for Assessing Human Exposure and Dose. EPA 600/X-04/060.

Fate, Exposure and Risk Analysis (FERA) website

<http://www.epa.gov/ttn/fer>

Fresno Particulate Matter Exposure Studies: Comparison of Community, Outdoor, and Residential PM Mass Measurements

EPA/600/J-01/268

Pesticide Exposure and Potential Health Effects on Children along the US-Mexico Border

EPA 600/R-02/085

Simulation Tool Kit for Indoor Air Quality and Inhalation Exposure (IAQX) Version 1.0 User's Guide, U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Research Triangle Park, NC, Report No. EPA-600/R-00-094 (NTIS PB2001-101221), 76 pp.

#### **Research Strategy Documents:**

Air Toxics Research Strategy

EPA 600/R-00/056

<http://www.gov/ord/htm/researchstrategies.htm>

Asthma Research Strategy

EPA 600/R-01/061

<http://www.gov/ord/htm/researchstrategies.htm>

Asthma and the Environment: A Strategy to Protect Children, 2000.

<http://www.epa.gov/children/whatwe/fin.pdf>

Framework for a Computational Toxicology Research Program

EPA/600/R-03/065

[http://www.epa/comptox/comptox\\_framework.html](http://www.epa/comptox/comptox_framework.html)

Human Health Research Strategy

EPA/600/R-02/050

<http://www.gov/ord/htm/researchstrategies.htm>

Mercury Research Strategy Document

EPA 600/R00/073

<http://www.gov/ord/htm/researchstrategies.htm>

Research Plan for Arsenic in Drinking Water

EPA 600/R-098/042

<http://www.gov/ord/htm/researchstrategies.htm>

Strategy for Research on Environmental Risks to Children

EPA 600/R-00/068

<http://www.epa.gov/ncea/pdfs/strat4resrch.pdf>

**Contributions to Other Reports or Products:**

Asthma Research Program Accomplishments

EPA 600/R-04/161

EPA Handbook for Use of Data from the National Health and Nutrition Examination Surveys (NHANES): A Goldmine of Data for Environmental Health Analyses. Washington, D.C., EPA/600/R-02/044.

Report on the Environment

EPA 600/R-03/050

**TECHNICAL ASSISTANCE-PROGRAM OFFICES**

Great Lakes National Program Office- Grant Review for Polychlorinated Diphenyl Esters

Member of Toxicogenic Mold Research Program (Inter-Program Office Group)

**Office of Air Research:**

MMT-Health Research Team, Protocol and Final Study Reports

Perchloroethylene Dry Cleaning Residual Rule Rule-Making Review Team

Review of Toxicologic and Pharmacokinetic Information on PERC Residual Risk

Reviewed Technical Information to Delist Methanol

Evaluated PK Studies on Oxygenate Fuel Additives

**Office of Public Policy and Ethics:**

Air Policy Branch, Technical Advisor

**Office of Emergency and Remedial Response:**

Review of PCB Guidance and Assistance with the CALUX Method for Measuring Total TEQ

**Office of Solid Water and Emergency Response:**

Phosmet Deregulation Workgroup

**Office of Water:**

Consultation on Interpretation of Data from Toxicological Studies

Briefing on Current Research on the Metabolism and Toxicity of Arsenic

Reviewed Drinking Water Toxicological Literature on Arsenic

**Office of Pesticide Programs and Office of Prevention, Pesticides and Toxic Substances:**

Age-related Immunotoxicity and Exposure to Chemical Mixture  
Development and Harmonization of Testing Guidelines for Immunotoxicity  
Dose-Response Modeling for Cumulative Risk Assessment for Methyl Carbamate Pesticides  
Carbamate Cumulative Risk Assessment Workgroup  
Cumulative Risk Assessment of Pesticides, Member Expert Advisory Panel  
Cumulative Risk Work Group  
Dimethyl Arsenic Mode of Action Workgroup, Member  
Dose-Response Modeling for Organophosphate Pesticides  
Functional Observational Battery Data Interpretation  
Chlorpyrifos FQPA 10X safety factor document preparation  
Age-Dependency of Toxic Responses  
Section 4 Proposed Test Rule for Testing Selected Solvents  
Carbamate Cumulative Risk Assessment Workgroup  
Physiologically Based Approaches to Human Health Risk Assessment, Scientist to Scientist Meeting  
Thyroid Hormone Interpretation and Testing Protocols  
Pyrethroid Pesticides and Cumulative Risk Assessment Workgroup  
Malathion Cumulative Risk Assessment Workgroup  
Neurobehavioral Toxicity Testing Data Interpretation

Co-Organizer of PBPK Modeling Workshop on Pesticides and Toxic Substances  
Evaluation of PBPK Model for Isopropanol and Dose-Response Analysis  
Evaluation of PBPK Models for Methanol and Methyl Chloroform  
Novel Models of Dose Additivity for Neurotoxicological Studies  
Pesticide Exposure Data, Consultant on Study Designs  
Pharmacokinetics and Interspecies Extrapolation Consultation for Risk Assessment of Perfluorooctanoic Acid  
Evaluation of PBPK Model for 1,1,2-trichloroethane Route to Route Extrapolation  
Review Data Submitted to OPP(OPPPTS)  
Developmental Neurotoxicity Retrospective Study  
Protocol Development for Testing Organophosphates  
Comparative Sensitivity  
Tier I assay for Steroidogenesis  
Proposed in vitro screen for ER/AR agonists and antagonists

**TECHNICAL ASSISTANCE-REGIONAL OFFICES**

Meeting of Regional Risk Assessors- Presentations:  
Endocrine Disruptors  
Biomarkers Research

Consultation, Children's Supplemental Cancer Guidelines and Life-Stage Risk, Regional Risk Assessor's Conference

Cancer and Life Stage Risk-Regional Risk Assessors Conference

Consultant, Inhalation Risk Assessment: A Superfund Focus
EPA Regional Applied Research Effort Cooperative Agreements
Consultation, Region 5, Movement and Deposition of Pesticides following their Application in and Around Residential Dwellings
Consultant, Region 5, Regulatory Activities Associated with Land Application of Sewage Sludge
Physiologically Based Pharmacokinetic Modeling to Determine Human Equivalent Concentration at US EPA Workshop on Inhalation Risk Assessment and Superfund
Region 10/Genomics Seminary Series, Integration of Toxicogenomics and Risk Assessment
Consultant, Region 2, Site-specific Incinerator Assessments
Liaison, ORD/OSP/Region 10
Consultant, Region 5 Site-specific Incinerator Assessments
Consultant to Regions to Develop PCB Superfund Guidance
National Tribal Science Council-Consultation on Endocrine Disruptors

#### **TECHNICAL ASSISTANCE-RISK ASSESSMENT FORUM**

Benefits Analysis Working Group
Colloquium on the use of Medaka in the Risk Assessment Process
Cumulative Risk Assessment Practice Panel
Exposure Oversight Group
Health Effects Committee
Interspecies Scaling Task Group
Point of Departure for Cancer and Non-Cancer Endpoint
Technical Panel on Cumulative Risk Assessment
Task Force to Provide Supplemental Guidance for Conducting Risk Assessment of Chemical Mixtures
Working Group on Benchmark Dose

#### **TECHNICAL ASSISTANCE-STAR PROGRAM**

Organizer Research Planning Session on Environmental Implications of Nanotechnology
Review Grants for Centers for Environmental Excellence on Children's Health

Review Grant Applications for Biomarker Proposals
Request for Applications (Write or Review) Assessment of Exposure and Toxicity in Children Biomarkers for Environmental Health and Risk Assessment Early Indicators of Environmentally Induced Disease Toxic Substances in the Environment
Grant Proposal Relevance Review Panels
Established MOU with NIEHS to jointly Solicit Environmental Justice and Children's Health Center Research Grants
Established First Tribal Grants Program
Established MOU with ATSDR to jointly Fund Tribal Research Grants
Particulate Matter Grants Selection Panel, Chair

#### **INTRA-AGENCY WORKGROUPS AND TECHNICAL PANELS**

Accountability Health Research Initiative Working Group, Co-Chair
Ammonium Perchlorate Risk Assessment Team, Member
Arsenic Health Assessment Review Group, Chair
Assessment Factors Workgroup, Co-Chair
Benchmark Dose Training Course
Biotechnology Research Program Committee
Cancer Slope Factor Workgroup for Arsenic, Member
EPA/ORD Survey Task Force 98
EPA Order 1900.1A Workgroup
EPA Ozone Science Committee, Co-Chair
EPA Benchmark Dose Workgroup, Member
Genomics Task Force- Data Analysis Workgroup of EPA Science Policy Council, Co-Chair
Human Health Risk Assessment Steering Committee, Member
Implementation Team for GMO Crops, Member
Inter-Agency Mixed Exposures Research Group
Intra-Agency Workgroup on Polychlorinated Brominated Flame Retardants, Member

OPPTS/ORD Endocrine Disruptors Screening and Testing Implementation Group, Member
“Red Team” Emergency Response Team, Members
Metals Assessment Framework Task Group, Member
Federal/State Risk Assessors and Risk Analysis Committee
MMT Health Research Team, Member
National Health and Nutritional Examination Survey, Member
National Human Exposures Assessment Survey Working Group
ORD Steering Group on Aging
ORD Air Toxics Research Strategy Planning Workgroup
ORD Computational Toxicology Steering Committee
ORD Asthma Research Coordinating Team
ORD RfD/RfC Technical Panel
ORD Biosolids Research Planning Team
ORD Computational Toxicology Framework Design Team
ORD Exposure Factors Program Advisory Group
ORD Working Group on FQPA 10X Safety Factor for Children
ORD/OAR HAP Delist Petition Technical Review Workgroup for MIBK
ORD Particulate Matter Centers Liaison Committee, Chair
ORD/OAR Total Facility Low Risk Determination Workgroup
National Estimate of Waterborne Disease Workgroup
Quality Science Team, National Performance Review, Member
PM Supersites and IMPROVE Method Intercomparison Team
Perfluorooctanoic Acid Workgroup
Working Group for the Development of Homeland Security Program, Member
Workgroup to Develop Supplementary Guidance for Conducting Risk Assessment of Chemical Mixtures, Member
Workgroup on Persistent Bioaccumulative Initiative, Member
Workgroup to Develop Immunotoxicity Testing Guidelines, Member

<b>INTER-AGENCY WORKGROUPS AND TECHNICAL PANELS</b>
Cross-Agency Workgroup on Brominated Flame Retardants
Endocrine Disruptor Evaluation and Validation Subcommittee
Federal Liaison Group on Asthma
Inter-Agency Committee on Neurotoxicology
Inter-Agency Committee on Respirable Fibers, Advisory and Planning Committee
Inter-Agency Coordinating Committee on the Validation of Alternative Methods
Inter-Agency Coordinating Committee, National Children's Study, Interim Chair Inter-Agency Coordinating Committee liaison to Exposure to Chemical Agents Working Group, NCS Inter-Agency Coordinating Committee liaison to Study Design Working Group, NCS Inter-Agency Coordinating Committee liaison to Asthma Working Group, NCS Inter-Agency Coordinating Committee liaison to Nutrition, Growth and Pubertal Development Working Group, NCS
Inter-Agency Food Safety Initiative
Inter-Agency Steering Committee on Multimedia Environmental Models, Urban Air Transport Models Workgroup
Inter-Agency Workgroup on Development and Behavior for National Children's Study
Inter-Agency Team Characterize Developmental Neurotoxicity of Mercury Vapor Exposure
Inter-Agency Team to Characterize Developmental Neurotoxicity of Organotins
Inter-Agency Team with Department of Energy on Mycotoxins, Consultant
Inter-Agency Working Group on Endocrine Disruptors of the National Science and Technology Council Committee on Environment and Natural Resources, Toxics and Risk Subcommittee, Member
Integrated Air Cancer Project, Study Design Team, Lead
Integrating Scientific Information Workgroup, Member
Multi-Agency Workgroup to Develop Nation-Wide UV-B Index
National Children's Study Steering Committee
National Human Exposure Assessment Survey (NHEXAS)
NIEHS/EPA Breast and Prostate Faculty Group, Member
Particulate Matter Working Group, Air Quality Research Subcommittee, CENR, OSTP

President's Task Force on Environmental Risks and Safety Risks to Children and the Children's Health Act of 2000, Interim Chair, Member
Probabilistic Exposure and Risk Analysis Workgroup, Co-Chair
Risk Assessment Consortium
Senate Environment and Public Works Committee, Science Advisor
Tribal Science Council, EPA Representative
USEPA/CDC NHANES Biomarker Interpretation Committee, Member