



**Michigan Department of Environmental Quality  
Toxics Steering Group  
2011 Annual Report**

**I. INTRODUCTION**

The Toxics Steering Group (TSG) provides a forum for the discussion of issues related to toxicology and the assessment of human health risks associated with exposure to chemical contaminants in the environment. The TSG also facilitates the development of scientifically defensible recommendations to relevant state of Michigan (State) department managers, fosters consistency of risk assessment methodologies within the Department of Environmental Quality (DEQ) and between State agencies, and helps to minimize the duplication of effort on risk assessment issues. The TSG subcommittees and workgroups are formed when particularly complex risk assessment issues need to be evaluated and resolved. All toxicologists within the Air Quality Division (AQD), Remediation Division (RD), Resource Management Division (RMD), and Water Resources Division (WRD) of the DEQ, the Department of Community Health (DCH) and the Department of Agriculture & Rural Development (DARD) are TSG members. This report summarizes the activities of the TSG subcommittees, workgroups, and individual members that have furthered the goals of the TSG in 2011.

**II. 2011 TSG MEMBERSHIP**

DEQ

Amy Babcock (WRD)  
Shannon Briggs (WRD)  
Dennis Bush (WRD)  
Mike Depa (AQD)  
Christine Flaga (RD)  
Kay Fritz (RMD)

Doreen Lehner (AQD)  
Deb MacKenzie-Taylor (RMD)  
Divinia Ries (RD)  
Amy Salisbury (RD)  
Robert Sills (AQD)  
Eric Wildfang (RD)

DCH

Christina Bush  
Linda Dykema  
Jennifer Gray  
Kory Groetsch  
Lisa Quiggle

DARD

John Buchweitz

### **III. SUMMARY OF THE TSG SUBCOMMITTEE AND WORKGROUP ACTIVITIES IN 2011**

#### **Children's Environmental Health Subcommittee (CEHS):**

CEHS Members: Amy Babcock  
Christina Bush  
Mike Depa  
Deb MacKenzie-Taylor, chair  
Divinia Ries

The CEHS was the only TSG subcommittee active during 2011. The CEHS is charged with tracking developments in the area of children's environmental health and making recommendations to the TSG for incorporation into human health risk assessment procedures, as appropriate. With a new chairperson for the CEHS, 2011 was a rebuilding year.

The CEHS continued to meet and provide recommendations for the Part 201, Part 7 administrative rules, including evaluation and drafting recommendations for the application of age-dependent adjustment factors (ADAFs) for assessing increased susceptibility to cancer after early-life exposures. The CEHS investigated the current guidance available from the United States Environmental Protection Agency (U.S. EPA) and other states; and polled other states on their use of ADAFs. The CEHS also reviewed the draft U.S. EPA guidance on determining a mutagenic mode of action that is associated with the application of ADAFs for only those chemicals with a mutagenic mode of action and the peer review of that draft guidance. A proposal was presented to the TSG, discussed, and revised based on that discussion.

The CEHS has initiated a review of the article "Reducing the Staggering Costs of Environmental Disease in Children, Estimated at \$76.6 Billion in 2008" by Leonardo Trasande and Yinghua Liu and has been collecting articles to respond to this request.

The CEHS is also tracking the evaluation of the U.S. EPA's Voluntary Children's Chemical Evaluation Program, news articles, and regulatory developments related to children's environmental health.

The CEHS and other TSG members have also participated in several children's environmental health webinars and webinar series during 2011. There was a seminar series on the "Developmental Origins of Health and Disease" early in the year sponsored by the Toxicity Assessment Division within the National Health and Environmental Effects Research Laboratory at the U.S. EPA. The U.S. EPA Region 8 and others are currently sponsoring the "Improving Children's Health Through Federal Collaboration Webinar Series."

#### **Perfluorinated Compounds Workgroup (PFCW):**

PFCW Members: Amy Babcock, co-chair  
John Buchweitz  
Christina Bush  
Robert Delaney (RD)  
Mark Henry (RD)  
Deb MacKenzie-Taylor  
Joy Taylor Morgan (AQD), co-chair  
Eric Wildfang

The PFCW was convened in response to a charge to the TSG from the DEQ's executive management to provide recommendations for establishing an environmental monitoring plan for perfluorinated compounds (PFCs) in the State. This charge was in response to the detection of PFCs in groundwater and surface water samples at the former Wurtsmith Air Force Base in Oscoda, Michigan. The PFCW submitted a white paper to Deputy Director Jim Sygo on September 1, 2011. The PFCW's recommendations focused on conducting limited air, groundwater, surface water, and wildlife tissue sampling at specified locations across the State to better understand the scope and extent of PFCs in the Michigan environment.

#### **IV. PUBLIC MEETINGS**

Several TSG members participated in public meetings in 2011 relevant to sites of environmental concern in Michigan. The TSG's involvement included an opportunity to educate meeting attendees regarding risk assessment issues at these sites through formal presentations and question and answer sessions. These events included:

- U.S. EPA sponsored public meetings in Marshall and Galesburg, Michigan related to the ongoing cleanup efforts associated with the Enbridge oil spill.
- AQD public meetings in Detroit and other locations regarding air emission permitting for sources raising public concern.
- DEQ sponsored public meetings in Belding, Michigan related to an industrial release of lead to the air and soil.

#### **V. OUTREACH AND EDUCATION**

The TSG was represented by a member's participation in the Stakeholder Advisory Board for the University of Michigan, School of Public Health's Environmental Health Science Core Center (EHS CC) Community Outreach and Education Core (COEC).

The TSG members contributed to the *Emerging Contaminants of Concern* section of the 2011 State of Michigan's Environment Triennial Report.

The TSG sponsored and staffed several popular displays at the April 21, 2011, DEQ Earth Day event at Constitution Hall. This year's featured displays sought to raise children's general awareness of the issues of mercury contamination in fish, lead poisoning in the home, and environmental stewardship. Staff from the Department of Natural Resources, Fisheries Division collaborated by sharing their fish mounts and contributing other activities and resources in support of the event.

#### **VI. TRAINING**

While not an exhaustive list, the following are highlights of the TSG members' professional development pursuits in 2011.

Scientific society meetings provide the TSG members the greatest exposure to the newest and most relevant issues in toxicology and risk assessment. Meeting summaries are generally presented to non-attending members during the TSG Brown Bag sessions (see below). In 2011, the TSG was represented by a member's attendance at the following meetings:

- Society for Risk Analysis Annual Meeting, Charleston, South Carolina
- Society of Toxicology Annual Meeting, Washington, DC
- Toxicology and Risk Assessment Conference, Cincinnati, Ohio

Internal and external training courses provide the TSG members an opportunity to participate in a focused topic of learning. In 2011, one or more TSG members attended the following training courses:

- ITRC: 2-Day Classroom Training – Vapor Intrusion Pathway: A Practical Guideline
- U.S. EPA: Benchmark Dose Modeling and Its Use in Risk Assessment
- U.S. EPA: ProUCL Statistical Software Training

Local and regional meetings, symposia, and seminars allow the TSG members educational opportunities and an occasion to network with scientific peers in the area. In 2011, the TSG members attended:

- Michigan State University (MSU) Systems Biology Symposium
- MSU Summer Symposium on Transcriptional Dynamics, Evolution and Systems Biology

Internet webinars afford the TSG members an avenue by which to stay informed of some of the newest and most relevant issues in the fields of toxicology and risk assessment for minimal time commitment or cost. Webinar topics attended by the TSG members in 2011 included:

- The Burden of Environmental Disease in the United States
- Use of PBPK Modeling to Reduce Uncertainty in Risk Assessment
- ORD/NERL's Model to Estimate Aggregate and Cumulative Exposures to Chemicals
- Characterizing Vapor Intrusion Exposures: Model Predictions and Field Observations
- The Association Between Soil Lead and Blood Lead Levels
- Revisions to the U.S. EPA's Children's Exposure Factors Handbook
- Early Life Exposure to Carcinogens

The TSG Brown Bag sessions provides an informal, open forum for the TSG members (and others) to review and discuss new, innovative or controversial issues, and advances in the science of toxicology, risk assessment, and other relevant environmental themes. These presentations have allowed a more detailed level of discussion than time constraints permit during the formal TSG meetings. Topics discussed during the 2011 Brown Bag sessions included the following:

- Environmental emerging contaminant identification
- Highlights of the 2011 Society of Toxicology meeting
- An update of the DCH PCB fish advisory level
- Mercury in the Great Lakes' basin
- Human cancer risk assessment
- Site-specific soil cleanup criteria development
- Enzyme alterations as adverse effects in risk assessment

## **VII. FUTURE NEEDS AND RECOMMENDATIONS OF THE TSG**

In response to national advancements in the field of risk assessment, the TSG recommends pursuing increased expertise in the following areas:

- Cumulative, multi-pathway, and probabilistic risk assessment
- Dose-response modeling using the U.S. EPA's benchmark dose software
- Physiologically-based pharmacokinetic modeling
- Interpretation of health statistics and health disparities relative to environmental contaminant exposures
- Characterization of risk at exposure levels exceeding health protective benchmarks

Webinars and other free Internet-based resources allow the TSG members limited opportunity for novel information exchange with the scientific community. The professional and technical development of the State's toxicologists are hindered by the limited ability of the TSG members to participate in external conferences, workshops, and seminars largely due to departmental budget constraints, reduced staffing levels, and competing assigned priorities. To achieve adequate protection of children's health, the TSG will continue to pursue all forms of professional development, information dissemination, and the application of the best available science and practices in toxicology, human health risk assessment, and risk communication.