



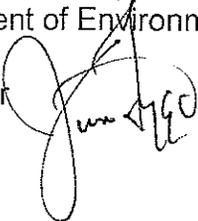
STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



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TO: Donald Koivisto, Director, Department of Agriculture
Jean Chabut, Deputy Director, Department of Community Health
Division Chiefs, Department of Environmental Quality

FROM: Jim Sygo, Deputy Director 

DATE: July 17, 2008

SUBJECT: 2007 Toxics Steering Group Annual Report

Attached is a copy of the Toxics Steering Group's 2007 Annual Report prepared by the Department of Environmental Quality (DEQ), Toxics Steering Group (TSG).

This report fulfills the requirement for the TSG to make an annual report of findings and recommendations of actions to be taken by the DEQ to ensure adequate protection of children's health found in the DEQ Policy and Procedure Number 09-006.

This report will be available on the TSG web site.

Attachment

cc: Janet Olszewski, Director, Department of Community Health
Steven E. Chester, Director, DEQ



2007 TOXICS STEERING GROUP ANNUAL REPORT TO THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY DIRECTOR

I. INTRODUCTION

The purpose of the Toxics Steering Group (TSG) is to provide a forum for discussion of human health risk assessment issues related to the exposure to chemical contaminants in environmental media. The TSG will facilitate development of consensus recommendations based on sound science to relevant State of Michigan (State) department managers. The TSG will foster consistency of risk assessment applications within the Michigan Department of Environmental Quality (MDEQ) and between State agencies, while minimizing duplication of effort. All toxicologists in the MDEQ are members of the TSG. In addition, the TSG includes membership from the Michigan Department of Community Health (MDCH), Division of Environmental Health (DEH) (See page 8 for a list of 2007 TSG members). The TSG members from State agencies outside of the MDEQ participate on several subcommittees. Efforts to coordinate with other agencies will continue to be pursued as opportunities arise. The purpose of this report is to describe the activities of individual members and subcommittees that have furthered the goals of the TSG.

II. SUMMARY OF THE TSG SUBCOMMITTEE ACTIVITIES IN 2007

Children's Environmental Health Subcommittee (CEHS)

Chairperson: Mary Lee Hultin, Air Quality Division (AQD)
Members: Christina Bush (MDCH)
Mike Depa (AQD)
Amy Merricle, Remediation and Redevelopment Division (RRD)
Amy Perbeck, Water Bureau (WB)
Divinia Ries (RRD)

This subcommittee is charged with tracking developments in the area of children's environmental health and with making recommendations to the TSG for incorporation into human health risk assessment procedures, as appropriate. The subcommittee chairperson regularly updates the TSG on current activities.

The CEHS provided comments on the United States Environmental Protection Agency's (U.S. EPA) *External Review Draft of the Framework for Determining a Mutagenic Mode of Action for Carcinogenicity*. This document is intended to be used in conjunction with the *Early Life Supplemental Guidance for Cancer Risk Assessment*, previously published by the U.S. EPA. The issue of mutagenic mode of action is critical to the implementation of the cancer guidelines, as it determines which chemical risk assessments will be subject to an additional uncertainty factor to account for early life

susceptibility (called the Age Dependent Adjustment Factor, or ADAF). Only chemicals determined to cause cancer by a mutagenic mode of action will have the ADAF applied in cancer risk assessment.

Members of the CEHS have participated in the West Michigan Children's Environmental Health Initiative (Initiative), which includes numerous partners such as neighborhood, local, county, state, tribal and federal agencies, and private organizations. The overall goal of the Initiative is to achieve a more holistic approach to children's environmental health through promotion and realization of healthier homes and surrounding environments. On November 28, 2007, the U.S. EPA and the Center for Disease Control (CDC) held a combined press event in Grand Rapids to announce the awards of \$300,000 and \$334,368 in grants, respectively. The U.S. EPA and the CDC recognized the Initiative as a National Model Pilot for Community Collaborations. The Initiative will implement programs that identify and reduce or eliminate risks to children in urban Grand Rapids.

The CEHS subcommittee members were participants in the U.S. EPA's Office of Children's Health Protection and Environmental Education webcasts. These Children's Environmental Health Distinguished Speaker webcasts were held in the spring and summer of 2007 and included the following topics:

- Children's Environmental Health Disparities
- Climate Change and Children's Health
- Kids and Healthy Homes - Making the Connection

The CEHS participated via conference call in the stakeholder meeting of the Minnesota Department of Health regarding the Groundwater Rule Revision changes that would require the development of Minnesota Health Risk Limits for drinking water to incorporate children's risk assessment values.

The CEHS also participated in the Toxicology Excellence for Risk Assessment (TERA) stakeholder meeting, via teleconference, on the Draft Framework to Evaluate Adult-Child Differences in Inhalation Dosimetry of Gases Peer Consultation.

Application of Manganese Particulate Soil Inhalation Criteria in the Detroit Area Subcommittee

Chairperson: Kay Fritz, Waste and Hazardous Materials Division (WHMD)

Members: Christina Bush (MDCH)
Robert Sills (AQD)
Divinia Ries (RRD)

Ad Hoc Members:

Deborah Mackenzie-Taylor (WHMD)
David Mason (AQD)
David Slayton (WHMD)

The purpose of this subcommittee is to evaluate the derivation of the manganese (Mn) Particulate Soil Inhalation Criteria (PSIC) values for application in Michigan, especially in the Detroit area, to ascertain if those PSIC values are appropriate or if revisions may be justified.

This subcommittee completed the following in 2007:

1. The generation of dispersion factor values for different source sizes using 2002-2006 meteorological (met) data and the AERmic dispersion MODEL (AERMOD) model. The AERMOD model was formulated by the American Meteorological Society U.S. EPA Regulatory Model Improvement Committee. These values were compared with the Part 201 Industrial Source Complex Short Term Version 3 (ISCST3) based values. All stations used previously with ISCST3 were modeled using the one-half acre source size. The "average" met station was chosen (MBS - Midland/Bay City/Saginaw), and then all the source sizes were remodeled using MBS met data. Additional source area sizes smaller than one-half acre were also modeled.
2. Draft comparison of Mn clean-up standards in soil including methodology of selected states and the U.S. EPA Regions
3. Draft summary of relevant Mn data in the Detroit area
4. PSIC source area size guidance (incorporated into the updated RRD Op Memo 1, Attachment 7, Technical Support Document, July 2007)
5. Draft evaluation and justification for removing the Particulate Emission Factor (PEF) adjustment factor (PEF/2 portion of the PSIC algorithm) for Mn

The completion of the Mn PSIC report is planned for 2008.

Polybrominated Diphenyl Ethers (PBDE) Subcommittee

Chairperson: Christine Flaga (RRD)
Members: Dennis Bush (WB)
Kory Groetsch (MDCH)
Deborah Mackenzie-Taylor (WHMD)
Catherine Simon (AQD)

This subcommittee released an updated report in May 2007. The original report was released in January 2004. The 2007 revision focused more on Deca-BDE, since information was sufficient in the 2004 version to support legislative bans for Penta- and Octa-BDE. The report was presented to the PBDE stakeholders group in June 2007, and comments were received in August from the Bromine Science and Environmental Forum (BSEF). As of the end of 2007, responses to the BSEF comments are being drafted along with revisions to the report itself.

Several meetings were held in 2007 to finalize the report, prepare for the stakeholder presentation, and to prepare responses to BSEF's comments. Subcommittee members were also responsible for drafting an analysis of House Bill 4465, which prohibits the manufacture and distribution of mattresses, residential upholstered furniture, televisions, and computers that contain Deca-BDE. The response to comments and the report will be finalized in 2008.

Uncertainty Factors in Non-Cancer Risk Assessment Subcommittee

Chairperson: Robert Sills (AQD)
Members: Dennis Bush (WB)
Deborah Mackenzie-Taylor (WHMD)
Maggie Sadoff (AQD)
Divinia Ries (RRD)

This subcommittee was charged with evaluating the appropriate use of the uncertainty factor for database gaps. A partial report has been drafted, and the subcommittee met once in 2007. This subcommittee's work has become a relatively low priority due to other assignments. Future progress will be dependent on workload and priorities.

III. ACTIVITIES

TSG Participation in Earth Day Activities

On April 19, 2007, the TSG members returned to teach various aspects of environmental toxicology to the over 2,000 elementary school students attending the 2007 Earth Day celebration at Constitution Hall. Participants entering the "Risky Business II" room used a fishing game to learn about the State's mercury fish consumption advisory, identified asthma triggers and lead hazards in home environments, learned the concepts of dose and susceptibility, and observed aquatic insects used in acute toxicity testing, among others.

IV. TRAINING

Brown Bag Seminar Series

The monthly Brown Bag seminar series continued to develop as a means to provide the TSG members with an open forum for the review and discussion of new and innovative issues and advances in the science of toxicology and risk assessment. These informal discussions have allowed for a far more detailed level of discussion than time constraints permit during the regular quarterly TSG meetings. Scientific topics presented during 2007 included the difficulties and approaches of assessing risk associated with exposure to chemical mixtures, industry involvement in science, use of organ weight changes in establishing reference dose values, and discussion of the

Agency for Toxic Substances and Disease Registry (ATSDR) toxicological parameters. The TSG members also participated in telephone and web-based presentations, presented meeting summary reports, held planning sessions for the TSG's Earth Day participation, and educational outreach opportunities during the Brown Bag seminars. The following table provides the 2007 Brown Bag schedule and presenters:

2007 BROWN BAG SEMINARS		
Date	Presenter	Topic
January 11	Kay Fritz	Part 201 "Mixture" Rules
February 8	Mary Lee Hultin	Global Climate Change and Children's Health (conference call)
February 20	All	Earth Day and Priority/Goal List
March 8	Brown Bag Team	Brainstorming for Future Sessions
April 12	All	Annual Report
May 10	Mary Lee Hultin Divinia Ries	Society of Toxicology Annual Meeting Recap
June 14	All	Interstate Technology and Regulatory Council (ITRC) Risk Assessment and Risk Management Webcast
July 12	Kay Fritz	Huff Paper on Industry Involvement in Science
August 9	Chris Bush	ATSDR Comparison Values
August 30	Eric Wildfang	Toxicological Significance/Severity of Effects
October 11	All	Harmonization of Assessments Among Divisions
November 14	Eric Wildfang Amy Perbeck	Summary of University of Michigan Nanotechnology Seminar and Federal/State Toxicology and Risk Analysis Committee
December 12	All	Annual Report

Seminars Attended by the TSG Members

- "What Does Climate Change Mean for Public Health?" February 8, 2007. Webcast presented by Cindy Parker MD, MPH, of Johns Hopkins Bloomberg School of Public Health.
- "Vapor Intrusion Pathway: A Practical Guideline." May 8, 2007. Webcast presented by the ITRC.
- "Committee on Improving Risk Analysis Approaches Used by the U.S. EPA." June 12, 2007. Webcast presented by the National Research Council.
- "Risk Assessment and Risk Management: Determination and Application of Risk-Based Values." June 14, 2007. Webcast presented by the ITRC.

- “Community Exposure to Pentachlorophenol in Air in East Point, Georgia.” August 30, 2007. Webcast presented by the ATSDR.
- “Health Literacy: Antecedents and Strategies to Increase the Effectiveness of Health Messages.” December 3, 2007. Seminar presented by Kami Silk, Michigan State University, Department of Communication.

The Michigan State University Respiratory Research Institute seminars were attended by a number of the TSG staff, including the following presentations:

- “Atmospheric Monitoring and Source Identification of Particulate Air Pollution.” November 2, 2007. Seminar presented by Jerry Keeler of the University of Michigan.
- “Nasal Modeling at the Hamner: Implications for Dosimetry and Interspecies Extrapolation.” March 2, 2007. Presented by Dr. Julia Kimbell of the Chemical Industry Institute of Toxicology Centers for Health Research. Prior to the seminar, a number of the TSG members met privately with Dr. Kimbell to ask questions and discuss their needs from a regulatory risk assessment perspective. At this meeting, the TSG members learned of some additional risk assessment tools under current development that will be of use in the near future.

Professional Meetings and Conferences

The 46th annual meeting of the Society of Toxicology was attended by Ms. Mary Lee Hultin, Ms. Divinia Ries, and Mr. Brian Hughes on March 26 through 28, 2007. They presented the highlights of the conference to the TSG at a Brown Bag seminar on May 10, 2007, which included risk assessment issues such as emerging contaminants, mixture assessment methodologies and models, biosensor technology, and cardiovascular effects and children’s health impacts related to air pollution. Other Society of Toxicology topics included:

- The Future of Risk Assessment;
- An update on the availability of the Alliance for Risk Assessment hosted by TERA;
- The health effects of gasoline and diesel exhaust; and
- Teaching toxicology to K-12

The MDCH members of the TSG attended an ATSDR Region 5 workshop May 14 through 16, 2007. The agenda included vapor intrusion case studies, mercury exposure assessment, perfluorochemicals in drinking water, arsenic in drinking water, fish consumption needs assessment, trichloroethylene emissions and exposure, hydrogen sulfide from oil wells, chemical use in the arts, asbestos (vermiculite) update, and brownfields.

V. NEEDS AND RECOMMENDATIONS OF THE TSG FOR 2008 AND BEYOND

The TSG recognizes that budget constraints and other departmental priorities may delay or preclude the following requests. However, it is necessary to acknowledge the fact that in order to continue to incorporate the best available science in our recommendations and assessments, the TSG members must be able to keep their expertise honed, as the field of risk science continues to evolve.

In order to fulfill our mission and to better serve and protect the public, the TSG members would like to see more emphasis placed on joint training and coordination of information and knowledge dissemination. Continuation of the TSG Brown Bag series is one step toward this goal. Training could also be in the form of in-house training by outside experts, the purchase of educational CD/DVDs, on-line courses, or "train the trainer" type education, where one or more core staff is approved for travel to key conferences and seminars and then bring knowledge back to the group.

Examples include training in the following key risk science principles:

- **Physiologically Based Pharmacokinetic (PBPK) modeling.** The use of PBPK models in risk assessments prepared by outside groups such as the U.S. EPA and the regulated community is steadily increasing. At a minimum, all TSG staff should have sufficient knowledge to review these outside assessments. In addition, the TSG should have core staff trained to use PBPK modeling when conducting in-house risk assessments, where applicable.
- **Epidemiology and probabilistic risk assessment** for the reasons stated above. The TSG is currently evaluating the need for an epidemiologist and or biostatistician in conducting and evaluating human health risk assessments. To reduce costs, these positions could be shared among the divisions. A similar shared funding arrangement is in place for the librarian service within the MDEQ. The RRD previously had a statistician on staff. This position remains open. The MDEQ is currently contracting out for this service.

As the application of updated methodologies (e.g., the benchmark dose methodology and probabilistic risk assessment) become the standard in risk assessment, the need for a biostatistician may become critical in interpreting data and model outputs. The TSG will evaluate the potential application of such a position and if there is a critical need in one or all divisions for one. Also, the TSG members will attempt to identify specific instances where having a departmental biostatistician could have reduced or eliminated delays in review time, prevented the contracting of outside assistance, or improved upon and added support to toxicologist recommendations.

2007 TOXICS STEERING GROUP MEMBERS

Deputy Director: Jim Sygo, MDEQ

Chairperson: Amy Merricle, MDEQ, RRD

MDCH, DEH

Christina Bush
Linda Dykema
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Gary Butterfield
Mike Depa
Mary Lee Hultin
Maggie Sadoff
Robert Sills
Catherine Simon

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Christine Flaga
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Eric Wildfang

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Kay Fritz
Deborah Mackenzie-Taylor

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Shannon Briggs
Dennis Bush
Amy Perbeck
Emily Weingartz, Librarian, Ad Hoc Member