

MICHIGAN DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENT

INTEROFFICE COMMUNICATION

TO: Rebecca Humphries, Director
Jim Sygo, Deputy Director

FROM: Robert Sills, Air Quality Division (AQD), 2009 Chair, Toxics Steering Group

DATE: April 16, 2010

SUBJECT: Toxics Steering Group (TSG) – 2009 Annual Report

Attached please find the 2009 Annual Report prepared by the TSG. This fulfills the requirement of the Department of Natural Resources and Environment (DNRE) Policy and Procedure Number 09-006 for the TSG to prepare an annual report of accomplishments and recommendations to ensure adequate protection of children's health.

The purpose of the TSG is to provide a forum for discussion of human health risk assessment issues related to exposure to chemical contaminants in environmental media. The TSG facilitates development of consensus recommendations based on sound science to relevant state department managers, fosters consistency of risk assessment applications within the DNRE and between state agencies, and ensures that duplication of effort on risk assessment efforts is minimized.

The 2009 annual report will be available on the TSG web site.

Attachment
cc: TSG members



**Toxics Steering Group
Michigan Department of Natural Resources and Environment
2009 Annual Report**

MEMBERS (2009)

DNRE:

Amy Babcock, Water Bureau (WB)
Shannon Briggs, WB
Dennis Bush, WB
Gary Butterfield, AQD
Mike Depa, AQD
Christine Flaga, Remediation and Redevelopment Division (RRD)
Kay Fritz, Waste and Hazardous Materials Division (WHMD)
Mary Lee Hultin, AQD
Doreen Lehner, AQD
Deb Mackenzie-Taylor, WHMD
Divinia Ries, RRD
Amy Salisbury, RRD
Robert Sills, Chair, AQD
Emily Weingartz, Librarian, WB
Eric Wildfang, RRD

Michigan Department of Community Health (MDCH):

Christina Bush
Linda Dykema
Jennifer Gray
Kory Groetsch
Lisa Quiggle

Michigan Department of Agriculture (MDA):

John Buchweitz

I. INTRODUCTION

The Toxics Steering Group (TSG) provides a forum for the discussion of issues related to the assessment of human health risks associated with exposures to 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 DNRE and between State agencies, and helps to minimize the duplication of effort. TSG subcommittees are formed when particularly complex risk assessment issues need to be resolved. All toxicologists within the

DNRE, the MDCH, and the MDA are TSG members. This report describes the activities of individual members of the TSG and subcommittees that have furthered the goals of the TSG.

II. SUMMARY OF THE TSG SUBCOMMITTEE ACTIVITIES IN 2009

Children's Environmental Health Subcommittee (CEHS):

Chairperson: Mary Lee Hultin, AQD

Members: Amy Babcock, WB
Christina Bush, MDCH
Mike Depa, AQD
Amy Salisbury, RRD

Ad hoc member: Divinia Ries, RRD

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. The subcommittee chair regularly updates the TSG on current activities of the CEHS.

A) Involvement in the Greater Grand Rapids Children's Environmental Health Initiative (GGRCEHI)



Staff from the CEHS participate in the GGRCEHI, which includes numerous partners such as neighborhood, local, county, state, tribal and federal agencies and private organizations. Details about the GRCEHI are available at www.healthykidsgr.org and in Appendix A. As part of the GGRCEHI, CEHS and DNRE AQD and Office of Pollution Prevention and Compliance Assistance staff provided outreach and education materials to help reduce children's exposure to toxic substances. Outreach occurred at a number of community events, particularly targeted toward families with from low income and/or children with environmental health problems. In September, the GGRCEHI, the Kent County Health Department, the MDCH, and the DNRE co-sponsored a Mercury Spill Response Workshop at the Kent County Health Department. Over fifty participants from schools, fire and health departments, and community and health organizations gained hands-on experience in responding to a mercury spill at a mock school setup. With assistance from a Lumex mercury monitor, participants were provided with information to effectively respond to a mercury spill.

B) Involvement in Part 201 program redesign

The committee held numerous meetings to explore the consideration of appropriate child-specific factors into the proposed soil criteria, a component of the Program Redesign of the Part 201 Rules, at the request of Dr. Ries. As part of the work on this issue, the group created a white paper on the importance of considering children's exposures. The group also took an informal survey of Environmental Protection Agency (EPA) regions and other State's efforts

relating to the use of the mean soil ingestion rate recommended by U.S. EPA in the 2009 Children Exposure Factors Handbook. As a result of these efforts, the CEHS recommended to the full TSG that the most appropriate and reasonable children's incidental soil ingestion rate was 200 mg/d. The full TSG approved the CEHS recommended soil ingestion rate value on November 24.

C) Response to carbon monoxide poisoning

Ms. Bush investigated non-fatal carbon monoxide (CO) poisoning in children following exposure in an indoor motocross arena. She evaluated results from indoor air sampling performed after the event and provided recommendations for maximum CO concentrations in such facilities.

D) Response to request for collaboration from MDCH staff involved in the National Children's Study

Drs. Marina Kleinhapel and Lorri Cameron, MDCH, presented information on "The Michigan Component of the National Children's Study" to the CEHS on July 17, 2009. The presentation spurred dialogue between CEHS members and MDCH staff as to how the groups might collaborate.

E) Professional development training

Technical seminars and conferences attended by members of the CEHS include:

1. "Implementing the National Children's Study in 5 Counties in Michigan: A case study in collaboration" by Dr. Nigel Paneth of Michigan State University (MSU). Ms. Bush and Ms. Hultin discussed concerns regarding the proposed environmental sampling and the amount of training planned for the individuals who will be collecting the samples with Dr. Paneth. Ms. Bush provided written comments on the proposed environmental sampling protocol.
2. "Bisphenol A, Baby Bottles, and Broccoli: Environmental and Nutritional Epigenetics" by Dr. Dana Dolinoy, Searle Assistant Professor, Department of Environmental Health Sciences, the University of Michigan School of Public Health, hosted by the MSU Center for Integrative Toxicology.
3. The Society of Toxicology (SOT) annual meeting was attended by Ms. Hultin. Numerous presentations and abstracts from the meeting provided new data on children's environmental health issues. One important example was entitled, "Guidance for Selecting Critical Studies and Utilizing Child Safety Factors in Developing Child-Specific Reference Doses (chRfDs) for California School Site Risk Assessment".
4. A "Chemicals in Schools" Webinar hosted by Ms. Eileen Naples from the United States Environmental Protection Agency's (USEPA) School Chemical Cleanout program. The Missouri Department of Natural Resources staff provided information on emergency response partnerships with the USEPA and noted that schools may close but chemicals remain and present a hazard.

F) Outreach and education training provided

1. Ms. Hultin presented a "Train the Trainer" session on "Children and Chemical Risks in the Environment" to public health professionals in Grand Rapids. Also as part of the GGRCEHI,

Ms. Hultin prepared a paper on the development of a collaborative effort to address children's environmental health at the community level. The paper was presented at the National Public Health Conference in Atlanta, GA (see Abstract, Appendix A).

2. Ms. Hultin gave a number of presentations on a Centers for Disease Control and Prevention (CDC) grant-funded project which examined criteria air pollutant exposure and adverse birth outcomes in Michigan (summary in Appendix B).

Manganese (Mn) Particulate Soil Inhalation Criteria (PSIC) Subcommittee:

Chairperson: Kay Fritz, WHMD
Members: Christina Bush, MDCH
Divinia Ries, RRD
Robert Sills, AQD

Ad Hoc Members: Deborah Mackenzie-Taylor, WHMD
David Mason, AQD
David Slayton, WHMD

The Final Report of the "TSG Subcommittee for the Application of the Mn PSIC in the Detroit Area" was presented and discussed with the full TSG to complete the work of this subcommittee. The subcommittee members presented a PowerPoint overview of the key issues and recommendations. This was a relatively large effort which began in May 2006. The subcommittee identified and evaluated key toxicity studies of manganese and the varied use of those studies by regulatory agencies in risk assessments; updated the dispersion modeling for the PSIC; developed modifying factors for source area sizes; recommended removal of a two-fold adjustment factor for the Mn PSIC derivation; and updated the vehicular erosion emission equations. The subcommittee also raised for management consideration the issues of potentially incorporating a relative source contribution factor and addressing vehicular erosion emissions via different default and site-specific approaches. The subcommittee also provided comparisons between the resulting Mn PSIC criteria and the values developed by other States and USEPA Regions. The subcommittee's review of key manganese toxicity studies paralleled the AQD review and update of the Initial Threshold Screening Level (ITSL) by Mr. Butterfield; Ms. Bush contributed significantly to that review and update.

III. ACTIVITIES

TSG Participation in Earth Day activities

The April 22, 2009, Earth Day event was titled "Toxic World." Twenty-five volunteers represented the TSG for the operation of four displays which provided hands-on activities for children to learn about environmental pollutants and ways to reduce exposures. Displays were titled: "The Fishing Hole", "Dusty the (Lead) Dog", "Happy World Coloring Table", and "The Caterpillar Stop". All displays were well attended by the children.

IV. TRAINING

Brown Bag Seminar Series

The TSG Brown Bag seminar series provides an informal, open forum for TSG members (and others) to review and discuss new and innovative issues and advances in the science of

toxicology, risk assessment, and other relevant environmental themes. These discussions have allowed a more detailed level of discussion than time constraints permit during the formal TSG meetings. The Brown Bag seminar organizers, Ms. Babcock and Dr. Wildfang, continue to seek out relevant topics and speakers proposed by TSG members. Topics discussed during the 2009 Brown Bag seminar series included the following:

Month	Speaker	Topic
Feb	Kay Fritz	TSG Earth Day planning
Mar	Amy Perbeck	GLP and FDA's decision on BPA
Jun	Amy Perbeck	Online environmental news sources
Jul	Eric Wildfang	Endocrine disruptors
Aug	All	ATSDR & CDC National Conversation
Sep	Kory Groetsch	Wood boiler emissions
Oct	Christina Bush	Mercury in flooring materials
Nov	Christine Flaga	Midwest States Risk Assessment Conference review

Other Training

The networking among TSG members continued to facilitate planning and attendance at numerous webinars, workshops, and conferences related to risk assessment issues.

V. FUTURE NEEDS AND RECOMMENDATIONS OF THE TSG

The TSG will continue to pursue the application of the best available science and practices in human health risk assessment and risk communication. Although budget constraints and other departmental priorities may delay or limit participation in certain activities such as conferences, other means (e.g., webinars, internet resources) increasingly enable members to access information. The TSG members will continue to promote and pursue all forms of professional development and information dissemination. Continuation of the TSG Brown Bag series is one means toward this goal.

The TSG recommends pursuing increased expertise in the following risk assessment areas:

- Cumulative risk assessment
- Multipathway risk assessment
- Assessment of adverse and disproportionate impacts as components of environmental justice
- Dose-response modeling using USEPA's benchmark dose software
- Physiologically based pharmacokinetic modeling
- Interpretation of health statistics and health disparities relative to environmental exposures
- Characterization of risk at exposure levels exceeding health protective benchmarks
- Probabilistic risk assessment

The TSG also recommends a modification to Policy and Procedure 09-006 (Toxics Steering Group) to provide guidance for the formation of new TSG subcommittees (work groups). The proposed draft language, which was submitted on January 29, 2009, reads:
"In some cases, it may be necessary to form a TSG work group to examine highly technical issues that affect multiple divisions / bureaus. A recommendation to form a work group may be

made at any time by any TSG member. However, before a work group can be officially created, a supervisor of a TSG member must send a written proposal to the other supervisors stating the purpose, scope of work, and estimated time line for completion of specified tasks. If all of the supervisors agree that a work group needs to be created, each supervisor whose division / bureau might be impacted by the work group's findings will provide at least one work group member. The supervisors are also responsible for assuring that their staff complete work group assignments by the due dates."

Appendix A

Title: The West Michigan Children's Environmental Health Initiative

Background: Numerous organizations and individuals work to improve the environmental health of children. However, these efforts may be duplicative or miss key issues due to lack of collaboration. With assistance from the U.S. EPA, an initiative was created to enhance collaboration and expand efforts among such partners in West Michigan. Collaboratively, stakeholders chose to focus on the urban area surrounding Grand Rapids, MI. The result is the Greater Grand Rapids Children's Environmental Health Initiative (GGRCHEI).

Issue: The overall goal of the GGRCHEI is to achieve a holistic approach to children's environmental health through promotion and realization of healthier homes and environments. The group consists of core members; consisting of members from agencies dealing with various aspects of children's environmental health. Stakeholders from government, non-profit and private sector groups participate. Workgroups have formed to address the issues of environmental indicators; radon, carbon monoxide and asthma.

Results: The GGRCEHI successfully competed for funding to support its work, receiving USEPA Community for a Renewed Environment and CDC Environmental Public Health Capacity Building grants. The GGRCEHI conducts numerous outreach/education events, distributing materials from broadly focused areas from the variety of stakeholder groups participating in the initiative.

Lessons Learned: The benefit of bringing together enthusiastic stakeholders to champion the issue of children's environmental health is that most members have a unique area of expertise. It is difficult to bring the diverse interests together and unite behind a common cause. Bringing a variety of unique groups together can foster difficulties understanding one another. The GGRCEHI participated in a charette process which facilitated development of joint goals and improved communications.

Appendix B

Summary of Paper: The Influence of Adjustments for Long-term Trends in Air Pollutant Levels on Analyses of Air Pollutant Exposures and Adverse Birth Outcomes

**Mary Lee Hultin⁴, Hien Q. Le¹, Stuart A. Batterman¹, Robert L. Wahl²,
Julia J. Wirth^{2,3} and Michael Depa⁴**

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³Michigan State University; ⁴Michigan Department of Natural Resources and Environment

Numerous studies in the U.S. and other countries have demonstrated associations between exposure to specific air pollutants and adverse birth outcomes, including low birth weight (LBW), premature birth (PTB) and small for gestational age (SGA). Birth weight, gestational age and fetal growth are important indicators of postnatal health. Associations between these adverse birth outcomes and criteria pollutant levels measured at fixed air monitor sites were analyzed. Although other authors have studied areas with higher pollutant levels, this is the first such study conducted in the Midwest United States where air pollutant levels are mostly below National Ambient Air Quality standards. In addition to the lower pollutant levels found in the Midwest, air pollution control programs in general have made significant strides in reducing ambient air pollutant levels in the past few decades. Researchers may fail to account for these reductions in their studies relating health effects to air pollution. This paper compares results from analyses adjusted for declines in ambient pollutant levels with results from those not adjusted. After controlling for trends and covariates, we observed consistent patterns of increase in the odds of SGA associated with exposures to carbon monoxide (CO), nitrogen dioxide (NO₂) and fine particulate matter less than 20 microns in diameter (PM₁₀), and of PTB with exposure to sulfur dioxide (SO₂). After accounting for long-term trends, however, the statistical significance of CO-PTB and SO₂-SGA associations was removed. Associations for NO₂ and PM₁₀ pollutants, which did not show such temporal patterns, were insensitive to this adjustment. Adjustments for long-term trends, therefore, removed associations between adverse birth outcomes and air pollutant levels that would have otherwise been deemed significant.

DISCLAIMER

The views given are those of the authors and not necessarily those of the State of Michigan or the Michigan Department of Natural Resources and Environment.