



Michigan Department of Environmental Quality Toxics Steering Group 2015 Annual Report

I. INTRODUCTION

The Toxics Steering Group (TSG) is the Department of Environmental Quality's (DEQs) forum for discussion of human health and risk assessment issues related to exposure to chemical contaminants in environmental media. Members of the TSG are risk assessors and toxicologists within the DEQ (Air Quality Division (AQD), Remediation and Redevelopment Division (RRD), Office of Waste Management and Radiological Protection (OWMRP), and Water Resources Division (WRD), toxicologists from other state agencies (the Department of Health and Human Services (DHHS) and the Department of Agriculture and Rural Development (MDARD)), and other related state experts. The TSG meets approximately twice per year, or more if needed, with the goal of using the best-available science to address human health and risk assessment issues identified by the TSG or DEQ management. The TSG monitors and evaluates the latest scientific literature and general risk assessment issues, and makes recommendations relative to the DEQ's environmental programs. The TSG provides a forum for consideration of information used to develop criteria and screening levels; for monitoring, reviewing, and discussion of new and innovative approaches to complex risk assessment concepts; and for addressing scientific and technical issues related to hazard, exposure, and risk assessments.

II. 2015 TSG MEMBERSHIP

DEQ

Amy Babcock, MPH (WRD)
Shannon Briggs, Ph.D. (WRD)
Dennis Bush, MS (WRD)
Mike Depa, MPH (AQD)
Christine Flaga, MS (RRD), Chairperson
Kristen Kellock, Ph.D. (OWMRP)
Doreen Lehner, MS (AQD)

Deb MacKenzie-Taylor, Ph.D. (OWMRP)
Divinia N. Ries, Ph.D. (RRD)
Robert Sills, MPH (AQD)
Joy Taylor Morgan, MS (AQD)
Eric Wildfang, Ph.D. (RRD)
Keisha Williams, Ph.D. (AQD)
Emily Weingartz, Librarian, BS (RRD)

DHHS

Christina Bush, MS
Linda Dykema, Ph.D.
Jennifer Gray, Ph.D.
Kory Groetsch, MS
Lisa Quiggle, MS

MDARD

Kay Fritz, Ph.D.

III. SUMMARY OF THE TSG SUBCOMMITTEES AND WORKGROUP ACTIVITIES IN 2015

Children's Environmental Health Subcommittee (CEHS):

CEHS Members: Amy Babcock
Christina Bush
Deb MacKenzie-Taylor, Chair
Divinia N. Ries
Bob Sills

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 RRD requested the CEHS to assist the division in addressing the Collaborative Stakeholders Advisory Group's (CSA) recommendation that the DEQ develop a process for calculating cleanup criteria for environmental contaminants that demonstrate developmental/reproductive adverse effects. The subcommittee reviewed available literature with a focus on the United States Environmental Protection Agency, (USEPA), other federal, state, and international guidance related to risk assessment of developmental and reproductive toxicants. The CEHS worked through 2015 to draft a recommended process and technical support document to address developmental and reproductive toxicants for updating the generic cleanup criteria for the remediation program. The subcommittee presented the TSG-approved report "Process to Address Developmental and/or Reproductive Toxicity in the Derivation of Generic Cleanup Criteria" to the RRD in December, 2015.

Perfluorinated Compounds Workgroup (PFCW):

PFCW Members: Amy Babcock, Co-Chair
Christina Bush
Robert Delaney (RRD)
Kristen Kellock
Joy Taylor Morgan, Co-Chair
Eric Wildfang

The PFCW was charged by DEQ management to provide recommendations for establishing an environmental monitoring plan for perfluorinated compounds (PFCs) in the state. The PFCW submitted a white paper titled "Perfluorinated Compounds in Michigan: Current State of Knowledge and Recommendations for Future Actions" on September 1, 2011. The PFCW continued to meet and evaluate data collected and new research, policies and regulations pertaining to PFCs.

The DEQ Office of Drinking Water and Municipal Assistance (ODWMA) has teamed with RRD and DHHS staff involved at the former Wurtsmith Air Force Base site in Oscoda, where PFCs have contaminated locally caught fish and drinking water wells. Also, the Third Unregulated Contaminant Monitoring Rule (UCMR3) reported two public water systems (PWSs) in Michigan that exceeded the Minimum Reporting Level for PFOS; DEQ and DHHS have met with the PWSs to determine next steps. The AQD is monitoring the USEPA Integrated Risk Information System (IRIS) for a reference concentration (RfC) for PFOS. PFCs are included in the AQD

Toxic Air Contaminant (TAC) List. The RRD developed Part 201 cleanup criteria for PFOS and perfluorooctanoic acid (PFOA). DHHS has issued Eat Safe Fish Guidelines for fish from several waterbodies around the state due to PFOS levels in the filets.

1,4-Dioxane Subcommittee:

Members: Christine Flaga, Chair
Jennifer Gray
Deb MacKenzie-Taylor
Divinia N. Ries

The 1,4-Dioxane Subcommittee completed the report titled "*Review of a 1,4-Dioxane Presentation by Michael Dourson, Ph.D. on October 8, 2013*". The subcommittee met only once in 2015 and the report was finalized in February (2015). The draft report was reviewed by the full TSG in 2014. This report was in response to a request from the RRD to evaluate the information presented by Dr. Michael Dourson of Toxicology Excellence for Risk Assessment (TERA) on October 18, 2013, relating to 1,4-dioxane's mode of action for liver tumors in rodents. Based on the information and recommendations in the report, the RRD revised the cleanup criteria for 1,4-dioxane based on the toxicity information in IRIS.

School and Daycare Drinking Water Lead Levels Subcommittee:

Members: Jennifer Gray, Chair
Deb MacKenzie-Taylor
Robert Sills
Eric Wildfang
Christine Flaga
Kory Groetsch

In October 2015, MDHHS requested that the TSG provide endorsement of a health-based drinking water lead level that would require "no corrective action" to put back into service drinking water faucets and fountains used by Flint school and daycare children. Selection of the "corrective actions" was not included in the charge question and is not discussed in the resulting subcommittee report. A subcommittee convened and agreed to use the U.S. EPA's IEUBK model for lead exposure in children to provide the recommendation. Selected lead levels in air, soil, maternal blood, and home drinking water were agreed to represent Flint-specific conditions, and drinking water ingestions rates were selected from the U.S. EPA Exposure Factors Handbook. Drinking water lead levels were evaluated based on the percentage of children in a similarly exposed population that could have elevated blood lead levels, defined as greater than 5.0 micrograms per deciliter. For children under the age of 7 years, levels of lead in school and daycare water would need to be lower than 11 micrograms per liter to ensure that no more than 5% of the children had elevated blood lead levels. For children under the age of 1 year, levels of lead in school and daycare water would need to be lower than 2.0 micrograms per liter to ensure that no more than 5% of the children had elevated blood lead levels.

IV. COLLABORATIVE ACTIVITIES

- TSG members Dennis Bush, Shannon Briggs, and Kory Groetsch attended the interdepartmental meetings regarding hazardous algal blooms (HABs) and provided discussion from the toxicology perspective.
- Deb MacKenzie-Taylor and Kristen Kellock provided significant support to the RRD toxicologists and other RDD staff during the comprehensive update of the remediation program cleanup criteria and the proposed administrative rules for Part 201, environmental contamination response activity.
- Kay Fritz participated in the Urban Livestock Technical Workgroup in 2015 which had members from MDARD, MSU, and the City of Detroit.

V. OUTREACH AND EDUCATION

- TSG members participated in the 2015 Quality of Life Earth Day planning and activities.

VI. TRAINING

- Webinars provide the TSG the opportunities to keep abreast with the newest and most relevant issues in toxicology and risk assessment. Webinars sponsored by agencies and organizations attended by TSG members included:
 - U.S. EPA/National Institute of Environmental Health Sciences (NIEHS) Children's Centers' children's health webinar series
 - U.S. EPA and NIEHS risk assessment webinars
 - Agency for Toxic Substances and Disease Registry (ATSDR) webinars
 - State Risk Assessors (SRA) quarterly teleconferences and SRA sponsored webinars
 - Society of Toxicology Risk Assessment Specialty Section monthly webinars
 - Society of Risk Analysis sponsored webinars.
 - Interstate Technology and Regulatory Council training/webinars.
 - Waste Characterization Workshop
 - Various Hazards Training sessions
 - Urban Soils and Outcomes of Reducing Soil Lead Risks
- The TSG is represented in the ITRC "Bioavailability of Contaminants in Soil" technical team by Divinia Ries who actively co-leads the writing group for the section on "Use of Bioavailability in Risk Assessment". Bioavailability relates to the uptake of chemicals following exposure. This document is specifically focused on the bioavailability of contaminants in soil after oral exposure. Contaminants bound to soil are less available for uptake than the same contaminant administered alone. The goal of this document is to provide a better understanding and proper application of bioavailability data in human health risk assessments. This document is expected to be published in 2017.
- Kristen Kellock presented "A Screening Level Ecological Risk Assessment Framework for Urban Soils" at the 2015 Society for Environmental Toxicology and Chemistry held in Salt Lake City, Utah.
- Kristen Kellock, Keisha Williams, Amy Babcock, and Doreen Lehner participated in a Computational Systems Biology and Dose Response Modeling 3-day short course hosted by Michigan State University in May 2015.

- Shannon Briggs and Kay Fritz were members of the 2015 Leadership Academy.
- The PFCW invited researchers from 3M to present their latest research on PFCs. The seminar occurred in December, 2015.

VII. FUTURE NEEDS AND RECOMMENDATIONS OF THE TSG

TRAINING

In response to advancements in the field of risk assessment, the TSG continues to recommend that members pursue training to gain knowledge and skills in the following areas:

- Cumulative, multi-pathway, and probabilistic risk assessment
- Dose-response modeling using the U.S. EPA's benchmark dose software
- Interpretation of health statistics and health disparities relative to environmental contaminant exposures
- Emerging contaminants
- Environmental justice and environmental exposures
- Risk communication

To achieve adequate protection of children's health, the TSG will need to be equipped, through professional development, with risk communication skills and enhanced ability to apply the best available science and practices in toxicology and human health risk assessment.

LITERATURE REVIEWS

The DEQ librarian, Emily Weingartz, retired at the end of December 2015. Emily located, collected, and managed the department's scientific documents holdings many of which represent the basis for various values and standards derived throughout the department. Emily's primary task was to conduct scientific literature searches for the department's toxicologists and other technical staff to locate critical information needed to develop cleanup criteria, water quality standards, and air toxics screening levels among others. Emily's retirement means that the technical staff must now conduct their own literature searches. Steps are in place to fill the vacancy at a part-time level. This position represents a critical need of the TSG and we recommend that funding be shared by the divisions/d office that uses the librarian's services. Resources and tools for collecting this critical information is also a need of the TSG.