

INTRODUCTION

Air Quality staff from the Michigan Department of Natural Resources and Environment conducted an updated evaluation of health risks from exposure to toxic air contaminants in the Detroit area. The evaluation compared air and health data from 2001-2002 to more recent air monitoring results from 2006-2007. A group of people from government, industry, university and community organizations helped determine the best way to communicate these results. A previous project, called the Detroit Air Toxics Initiative (DATI) involved the health evaluation using the 2001-2002 air monitoring results. This project serves as an update. Both projects were funded by grants from the United States Environmental Protection Agency (USEPA).

BACKGROUND

Air monitoring data were collected at the same locations as done in the DATI study, when possible (see map below). Because of significant budget reductions, fewer air pollutants were measured at monitoring stations beginning in 2007.

Both DATI and this project used monitoring results to evaluate risks from air toxics in the Detroit area. The updated Risk Assessment Report provides detailed information on the methods and results of this evaluation.



FINDINGS

The health risk estimates in this study represent a “snapshot” in time based on one year of monitoring done in 2006-2007. The risk estimates are useful for comparing the monitoring sites, determining the most important air toxics, and for comparing them to the DATI results from 2001-2002 information.

All air toxics in the Detroit area were found at levels that, based on current knowledge, do not pose significant health risks in this updated evaluation.

Fourteen air toxics were identified as contributing to potential for health risk in the Detroit area. These chemicals are shown in the table below.

Priority Air Toxics for DATI update evaluation

Acetaldehyde	Chloroform
Acrylonitrile	Chromium (hexavalent)
Arsenic	1,4-Dichlorobenzene
Benzene	Formaldehyde
1,3-Butadiene	Manganese
Cadmium	Methylene Chloride
Carbon Tetrachloride	Nickel

Air levels of most of the compounds in the table above declined since the 2001-2002 DATI evaluation. Compounds that showed a slight increase include arsenic, chromium (hexavalent) and nickel at the background locations of Ypsilanti and/or Houghton Lake. Chloroform showed some levels elevated as compared to the health protective benchmark, however, it can't be directly compared to levels in the DATI because data was not collected at the same locations. Manganese levels have declined, however they remain above the health protective benchmark. Manganese continues to be of concern due to the potential to cause non-cancer effects. Manganese can cause harmful effects to the nervous system. The remaining priority air toxics were of concern because they are known or suspected to cause cancer.

FINDINGS

Cancer risk estimates for most compounds declined since the DATI project. Non-cancer risks also declined.

There are three possible reasons for the decline:

- a) Reduced traffic volumes in the area reducing pollutants associated with mobile sources of emissions
- b) Business closures due to the economic downturn
- c) Improved air quality improvement measures

Diesel particulate remains associated with high cancer risks; however, these estimates are uncertain due to limitations in the data.

Many of the air toxics were found at concentrations similar to those in other large, industrialized urban areas of the United States. However, a few air toxics at some sites were found at higher levels in the Detroit area including manganese, arsenic and chloroform. Levels of arsenic and manganese declined from the original risk assessment. Updated risk assessment results showed that although chloroform levels were detected, the associated risk was still below health-protective levels.

FUTURE ACTIONS

The DNRE will continue to monitor those air toxics identified as high priority if they remain at levels of concern. AQD staff will continue efforts to reduce manganese emissions and investigate the validity of the elevated chloroform levels. AQD will also research the reason for the slight increase in some concentrations at the background sites of Ypsilanti and Houghton Lake.

The DNRE will continue efforts to address the high levels of fine particulate matter and ozone in the Detroit area. These plans may also result in the reduction of some of the priority air toxics.

JENNIFER M. GRANHOLM
GOVERNOR

REBECCA HUMPHRIES
DIRECTOR



DETROIT AIR TOXICS INITIATIVE RISK ASSESSMENT UPDATE PUBLIC SUMMARY

AIR QUALITY DIVISION

Constitution Hall ~ 3rd Floor North ~ 525 West Allegan Street

P.O. Box 30260 ~ Lansing, MI 48909

Phone: 517-373-7023 ~ Fax: 517-241-7499

Internet Address: <http://www.michigan.gov/air>

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