

Chapter 10: Air Emissions Risk Analysis

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Chapter 10

Air Emissions Risk Analysis

10.1 Overview

Conducting an air emissions risk analysis (AERA) is one of several ways to assess the potential incremental multiple-pathway risks from estimated pollutant emissions. Multiple pathways include direct pathways such as inhalation and indirect pathways such as vegetable, meat and dairy consumption, etc. The MPCA prescribes use of an AERA to streamline its review and assessment of potential multiple-pathway risks from a facility. For additional information, please refer to the MPCA's *Facility Air Emissions Risk Analysis Guidance, Version 1.0*, updated in March 2004 and available online at: <http://www.pca.state.mn.us/air/atguide.html>. The process outlined in the AERA guide was designed to be integrated into the environmental review and permitting process. For those proposals that trigger an AERA, the MPCA expects that a complete AERA package will be included with the applicable permit application that initiates environmental review. The MPCA will use the information collected through the quantitative and qualitative analyses in making a preliminary decision.

10.2 What Triggers the Requirement to Conduct an AERA?

A facility will be directed by MPCA to conduct an AERA based on one or more of the following factors or conditions.

1. **It is in a source category required** to complete an EAW/EIS (environmental assessment worksheet/environmental impact statement) and air emissions of a criteria pollutant are expected to be greater than 100 tons per year after the use of control equipment, or it is a new or modified facility whose potential emissions increase are expected to be greater than 100 tons per year. The EAW/EIS mandatory categories are listed in Minn. R. 4410.4300, subp. 15.(A) or Minn. R. 4410.4400.
2. **The type of facility** that is proposed or is being modified, specifically an electric-production facility ≥ 25 MW, is one for which the MPCA requires an AERA be submitted for the air emissions permit.
3. **Other** (upon approval by MPCA risk/program managers), such as:
 - When there are individual and community concerns expressed to the MPCA or Minnesota Department of Health about a facility's air emissions
 - When there is substantive public comment on an air permit

- When a company is applying for a “flexible permit,” such as a plantwide applicability limit (PAL) or clean unit designation (CUD) that allows for air toxic emission changes without additional permitting
- At the MPCA’s discretion (e.g., when an existing facility is the focus of significant public interest, or a facility is known or suspected to be a significant emitter of toxic air pollutants that potentially represent a significant public health or environmental risk, regardless of permit status)

10.3 Outline of an AERA Process

The MPCA’s AERA Guidance provides details on the AERA process which, in general, consists of:

- A kick-off meeting with MPCA staff
- Development of exposure scenario(s)
- Determination of emission sources and pollutants
- Emission calculations
- Quantitative Risk Analysis, which can include:
 - Screening assessment(s)
 - RASS (Risk Analysis Screening Spreadsheet) or
 - Air dispersion modeling
- Qualitative Risk Analysis, and
- Special consideration of bioaccumulative toxics such as mercury. Special forms (HG-2003; Assessing the impacts of mercury releases to ambient air) have been developed by MPCA to standardize the assessment and reporting of the mercury evaluation. These mercury evaluation forms are part of the AERA guidance document; they can also be obtained from the MPCA’s website.

10.4 Using the AERA Results

There are a number of possible conclusions to the AERA process:

- The risk analysis is complete and environmental review and/or permitting preparation can proceed
- A focused risk analysis may need to be conducted, or additional data collection may be needed
- Mitigative measures may need to be evaluated
- An EIS may be recommended

10.5 Timing Considerations

The time frame for meeting with MPCA, conducting the technical parts of an AERA, preparing the AERA report and submitting it to MPCA, and having MPCA review and accept the risk results will vary depending upon whether a screening analysis or a more detailed analysis is conducted. Potential time frames for completing an AERA (obtaining MPCA acceptance of the risk results or working with the MPCA to develop an emissions reduction or monitoring plan) may range from several months to a year or more, depending on the level of potential risks associated with emissions, whether a refined, focused analysis

may be necessary, or other factors such as completeness of submittals. The AERA could become the most critical item related to project schedule and completion of the permit application or the EAW/EIS.

The MPCA will be tracking the length of time required to conduct an AERA, including the time it takes for MPCA staff to complete their review of submittals. It is expected that the MPCA will provide an update to interested parties at some time in late 2004 on the metrics of the AERA process (e.g., number of AERAs initiated, number of AERAs completed, average time of completion, range for completion times, average MPCA staff time for submittal review, etc.).

10.6 Guidance

Guidance on the AERA process, including detailed DISPERSE guidance, can be found on the MPCA's website at <http://www.pca.state.mn.us/air/atguide.html>.