

School Air Toxics Monitoring Initiative Data Analysis & Interpretation

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Background

- Purpose:
 - To investigate questions of potentially elevated levels of air toxics in outdoor air around selected schools and potential for health concerns

- School selection based on:
 - Draft risk estimates from 2002 National Air Toxics Assessments (NATA)
 - USA Today (12/08) ranking of scores derived with EPA model (Risk-Screening Environmental Indicator Model)
 - Air emissions estimates from EPA Toxics Release Inventory (2005)
 - Meteorological information from reference weather stations
 - Toxicity scores for air toxics
 - Available local air toxics information
 - Discussion with EPA regional staff, and state and local air agencies

During Monitoring Period at a School

Individual Sample Review

- Individual sample results reviewed in light of individual sample screening levels
 - Sample screening levels help us gauge potential for pollutant levels in air to raise health concerns for **short-term** exposures
- Findings above sample screening levels are considered more closely, with regard to
 - Sample QA/QC
 - Other results for that pollutant at that school (e.g., pattern of concentrations)
 - Information regarding potential sources of pollutant at school and variability
 - Information regarding circumstances associated with health effects, and type of health effects

During Monitoring Period at a School

Individual Sample Review

School Name	Parameter	Units	4/13/2009	4/19/2009	4/25/2009	5/1/2009	5/7/2009	5/11/2009	5/13/2009	5/19/2009	5/25/2009	5/28/2009	5/31/2009	6/6/2009	Sample Screening Level ^a
Ashland City School (470215501)	Manganese PM ₁₀ (LC)	ng/m ³	7	2.22	6.61	5.88	16.8	3.51	4.06	8.27	0.99	56.4	7.96	3.14	500
	Chromium PM ₁₀ (LC)	ng/m ³	1.55	0.43	1.04	1.43	1.86	1.34	1.13	0.71	0.67	3.87	1.88	1.13	580 ^b
	Arsenic PM ₁₀ (LC)	ng/m ³	0.35	0.6	0.41	0.17	0.51	0.61	0.47	0.65	0.84	0.4	0.76	9.56	150
	Cadmium PM ₁₀ (LC)	ng/m ³	0.07	0.07	0.1	0.02	0.04	0.12	0.75	0.13	0.09	0.08	0.13	0.15	30
	Nickel PM ₁₀ (LC)	ng/m ³	0.41	0.15	1.01	0.23	0.57	0.68	0.46	2.29	0.49	2.26	0.25	0.13	200
	Antimony PM ₁₀ (LC)	ng/m ³	0.33	0.51	0.74	0.41	0.31	0.47	0.44	0.69	0.55	0.49	0.7	1.7	2,000
	Cobalt PM ₁₀ (LC)	ng/m ³	0.17	0.03	0.08	0.04	0.18	0.06	0.05	0.1	0.02	1.05	0.07	0.04	100
	Mercury PM ₁₀ (LC)	ng/m ³	0.44	0.61	0.41	1.25	0.25	0.29	0.19	0.18	0.09	0.25	0.07	0.14	3000 ^c
	Beryllium PM ₁₀ (LC)	ng/m ³	0.002	ND	2E-04	ND	0.03	0.03	0.008	0.006	0.002	0.008	0.01	0.005	20
	Selenium PM ₁₀ (LC)	ng/m ³	0.67	0.64	0.5	0.13	0.27	0.9	0.69	0.37	3.67	0.5	1.04	0.85	20,000

: Key Pollutant

At End of Monitoring Period at a School

Analysis

- Performed after the full set of monitoring results is quality-assured
- Considers several types of information, including
 - Concentrations of air toxics monitored at school
 - Wind direction and speed measurements taken at the school
 - Information on nearby sources of air toxics

At End of Monitoring Period at a School

Analysis (continued)

- Addresses key questions, such as
 - Was sampling conducted during time with potential to see evidence of key source(s)/pollutant(s)
 - Were samples taken on days when winds indicate potential for suspected source(s) to be contributing to air concentrations at the school?
 - Was source(s) operating on sampling days?
 - Any indication that monitoring period conditions are not similar to conditions expected over longer-term?

At End of Monitoring Period at a School

Analysis (continued)

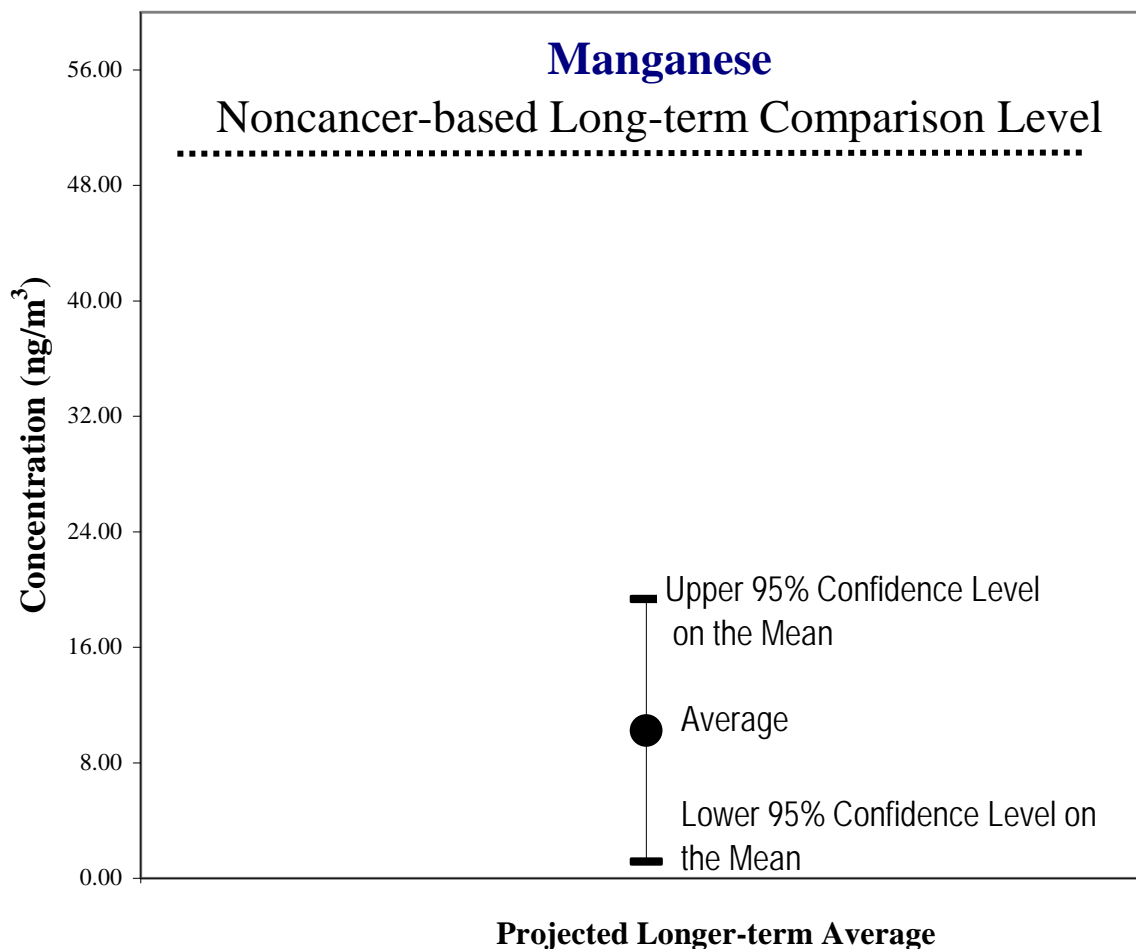
-key questions, such as
 - Do monitored concentrations of key pollutants (or others) indicate levels of concern for health impacts related to (*short- or*) long-term exposures?
 - Concentrations of key pollutants
 - Concentrations of other pollutants monitored
 - Concentrations of multiple pollutants (key or other)

At End of Monitoring Period at a School

Long-term Comparison Levels for Key Pollutants

Analyte	Cancer-based Comparison Level ¹	source	Noncancer-based Comparison Level ¹	source
Metals ³	<u>ng/m³</u>		<u>ng/m³</u>	
.....
.....
.....	-
.....	-
Manganese (PM ₁₀ focus)	-	.	50	RfC
.....
VOCs/Carbonyls				
.....
PAHs ⁷ :				
.....
Diisocyanates				
.....

At End of Monitoring Period at a School



At Completion of Analysis for a School

Technical Report

- Describes analysis for individual school
- Includes key findings and recommendations for next steps, such as:
 - Extend monitoring to collect additional data
 - Work to respond to identified concerns

Non-technical Summary

- Presented on EPA web site (www.epa.gov/schoolair)
- Findings and analysis from technical report summarized in non-technical language
 - Technical report itself also available from web site



Assessing Outdoor Air Near Schools

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'Our job is to protect the American public where they live, work and play – and that certainly includes protecting schoolchildren where they learn.' Administrator Lisa P. Jackson

As part of a new air toxics monitoring initiative, EPA, state and local air pollution control agencies will monitor the outdoor air around schools for pollutants known as [toxic air pollutants](#), or air toxics. The Clean Air Act includes a list of 187 of these pollutants. Air toxics are of potential concern because exposure to high levels of these pollutants over many decades could result in long-term health effects.

EPA [selected schools](#) after evaluating a number of factors including results from an EPA computer modeling analysis, the mix of pollution sources near the schools, results from an analysis conducted for a recent newspaper series on air toxics at schools, and information from state and local air pollution agencies.

EPA and our partners at state and local air pollution control agencies will:

- collect samples of outdoor air near selected schools over 60 days,
- analyze those samples for air toxics of potential concern,
- report on levels of air toxics found and their potential for long-term health impacts,
- evaluate actions that may be needed to reduce levels of pollutants of concern, and
- take action as needed to ensure that nearby industries are in compliance with clean air regulations.

Part of EPA's mission is to reduce the amount of toxic air pollutants in the air we breathe. For several decades we have issued rules and regulations that have cut emissions of these compounds from automobiles; trucks; buses; and a wide array of industries ranging from large facilities like chemical plants, refineries, paper plants, and factories, to smaller facilities like gasoline stations and dry cleaners.

From 1990 to 2005, emissions of air toxics in the United States declined 41 percent, as a result of federal and state regulations, and local emission reduction programs. However, levels of different air toxics can vary widely from place to place depending upon a number of factors including the amount and types of industry nearby, proximity to heavily traveled or congested roadways, and weather patterns. This study will help us better understand the air around selected schools throughout the country.

This web site provides information on this initiative, the schools where we plan to begin monitoring, background information on air toxics, and links to other programs EPA has in place to protect communities and school environments. When monitoring results are available, likely starting in summer 2009 for some schools, EPA will post them on this site.

[About the Project](#) - Fact sheet summarizing the key components of this initiative

[Basic Information](#) - Background on EPA's assessment of outdoor air near schools

[Map of Schools](#) - Identifies the locations of the schools where outdoor air will be monitored

[List of Schools](#) - School names, locations, and pollutants to be monitored in tabular form

[Monitored Pollutants](#) - Information about pollutants EPA will monitor in outdoor air

[Children's Health Issues](#) - Information of air quality, children's health, and programs EPA sponsors for schools and children

[What You Can Do](#) - Actions you can take to reduce air pollution

Announcements

- [Data are available for three schools](#)

Information for Schools

- [School Environments](#)

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