School Monitoring Initiative

Overview and Status

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Overview and Project Description

- Monitoring initiative announced March 2009
  - Initially 62 schools in 22 states
  - Now 63 schools plus two tribal schools
- Conducting “screening analysis” to look at how long-term exposure to toxics in outdoor air around selected schools might affect the health of school children, staff and the community.
- Focusing on a diverse set of schools near:
  - Large industries
  - In urban areas, where air toxics come from a variety of sources
- Selected the schools based on:
  - USA Today analysis,
  - Draft 2002 National Air Toxics Assessment,
  - Consultation with EPA regional staff and state and local air agencies

Monitoring Locations

The Plan

- **Data collection and analysis (consistency)**
  - National Monitoring Plan and Quality Assurance Plan developed
  - Monitoring for 60-day time period; minimum of 10-13 samples
  - Each site uses same type of monitor and are analyzed by same lab for consistency
  - Lab results for each sample are reviewed by OAQPS staff, region and state/local

- **Interim release (communication/transparency)**
  - After QA posting individual sample results to Web
    - Comparing individual samples to short-term screening levels to help gauge whether levels of individual pollutants in the air are high enough that they could cause health concerns from short-term exposure.
    - Also posting information about health effects of the pollutants

- **Summary reports (decision support)**
  - After monitoring complete, we will analyze the sample results -- and information on wind speed and direction from each school, historical wind data from the area where available, information about sources of pollution in the area.
    - Will include recommendations for next steps:
    - Extend monitoring to collect additional data if needed
    - Cease monitoring if no problems identified
    - Work to respond to identified concerns

EPA United States Environmental Protection Agency

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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.

Announcements

- Information on VOC resampling
- Información sobre monitoreo adicional de compuestos órganicos volátiles (PDF) (7pp, 47k, About PDF)
- Data available from 63 schools
- Information on acrolein (PDF) (2pp, 26k, About PDF)
- Información acerca de la acroleína (PDF) (3pp, 26k, About PDF)

Information for Schools

- School Environments

Results Posted to Web by School and Targeted Pollutant

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- Assessing Outdoor Air Near Schools Home
- About the Project
- Hoja Informativa
- Basic Information
- Map of Schools
- List of Schools
- Monitored Pollutants
- Children's Health Issues
- What You Can Do
- Frequent Questions
- Preguntas y respuestas
- Related Links
- Technical Information
- EPA Contacts

Warren Elementary School
Marietta, OH

EPA selected this school for monitoring because it is located near at least one large industry that is a source of air toxics emissions. The pollutants being monitored are different from school to school. Based on emissions from nearby sources, EPA identified key pollutants to measure in the air near this school. We are reporting concentrations of those key pollutants in the table below. Concentrations for other toxic air pollutants collected at the site are available. (For example, manganese may be the key pollutant at a monitoring site but other metals, such as arsenic, measured in the sample also are available.)

About the Data

The table below shows the levels of key pollutants in air samples collected at the monitoring site beginning in April 2009. The table also includes individual "sample screening levels" for each key pollutant monitored at the school. EPA developed these screening levels to help the Agency and the community get an early sense of what the data are showing. The sample screening level is a level of pollution in the air that is below what we expect to cause health problems from short-term exposures – all day, every day over a period ranging up to at least a couple of weeks (longer, for some pollutants).

To use the screening level, compare it to each sample result:

- a sample result at or below the sample screening level is not a concern for risk of health problems from short-term exposures.
- a sample result above the screening level does not mean that there is a risk to children and adults at the school. It is a signal for EPA to further evaluate those and subsequent results for that pollutant.

About The Table

Compare the sample results to the short-term screening level on the left. Numbers at or below that level indicate the pollutant is not likely to pose immediate health concerns.

EPA will analyze the potential for health concerns from long-term exposure after monitoring is complete. Interim monitoring results are in the table below. Samples collected to date do not indicate the presence of key pollutant(s) at levels of health concern.

Key Pollutant	Sample Screening Level	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Lead Non-FRM/FEM (Nanograms/cubic meter)	150	6.13	2.09	1.1	6.27	3.37	2.06	2.08	0.966	--	0.762	2.38	12.8	1.08	5.68
Manganese (Nanograms/cubic meter)	500	380	2.71	21.2	15.9	--	12.0	148	16.0	3.02	2.69	2.42	1170	90.7	39.4

ND = Pollutant Not Detected
-- = Sample not taken or invalid

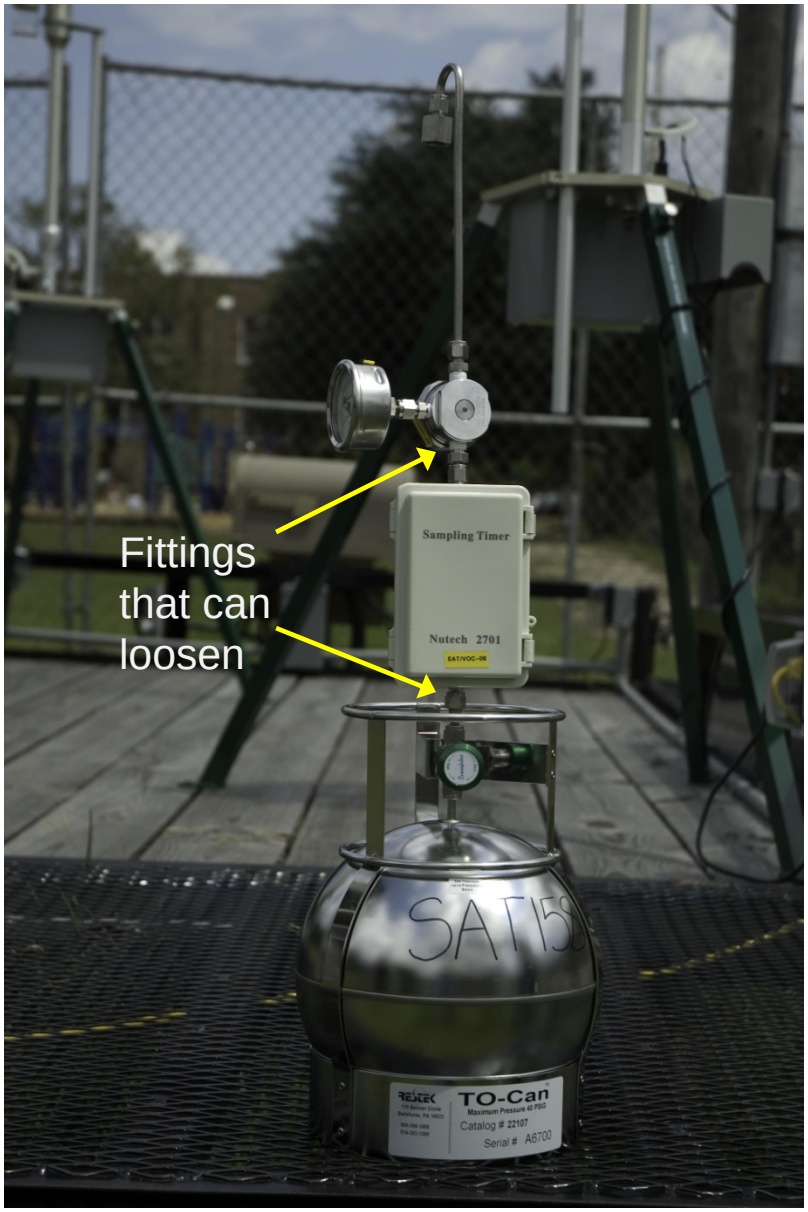
Also monitored

To further evaluate sample results above a screening level, we will consider:

- information about the chemical and its health impacts,
- information about collection of the sample (e.g., weather, activities around the monitor)
- potential sources of the pollutant, and
- the pattern of levels across multiple samples within the monitoring period.

Communication is Challenging

- Initially, external challenges primarily involved preventing conclusions based on single data points
  - Web posting compares to short-term screening level
  - Analyses will focus on long-term levels
- Air toxics are complex problems and difficult to communicate in a “sound bite”
- Transparency and expedited posting of data has positives and negatives
  - Errors can occur… but public response can be positive
- And you have to be flexible: the Plan may have to change



VOC Timer Leaks

- Fittings that attach timer to the canister and the inlet could loosen
  - Allowed air from inside the timer box to get into the canister
  - The timer box contained some of the chemicals we were monitoring
- As a result, invalidated substantial amount of data – some of which already was public
- 23 schools had to resample
  - 1 school chose to extend sampling

Other Data & Communications Issues

- In addition to the VOC timer leak, we also discovered issues with monitoring/analysis of acrolein
- Periodic Data Maintenance Issues Causes Data to Change on the Web
- But… feedback still positive and public seems to be able to roll with the changes

Status

- Analyses complete at two schools (Tenn)
  - Were able to start early because equipment available
- All schools have completed sampling
  - 1 school (Cupertino, Calif.) will monitor for one year, with remainder conducted by local agency
- Decisions whether additional monitoring is needed will be made when analyses complete
- Last data posting End of June, 2010

Project Summary

- Represents an unprecedented monitoring screening effort based on scale (national) and response time
- Focuses on technical consistency, data transparency and external communications
- Has already yielded lessons learned that will help determine where we go from here, but also where we need to re-focus some current efforts